



B  
8.2

# GRADUATE DIVISION

of

Arts and Sciences

Business Administration

Member of the American Association of Colleges and Universities.

Member of the Southern Association of Colleges and Schools.

Member of the National Catholic Educational Association.

Member of the Jesuit Educational Association.

Member of the Association of American Colleges and Universities.

Member of American Association of Colleges and Universities.

Accredited by the National Council for Accreditation of Teacher Education for the preparation of elementary teachers, and principals leading to the Bachelor's degree.

Approved for Teacher Education by the Louisiana State Board of Education.

LOYOLA UNIVERSITY

VOL. I

1969

Published Yearly

Loyola University, Incorporated April 15, 1912, and granted degrees by The General Assembly of the State of Louisiana in 1912.

*Ad Majorem Dei Gloriam*

# Loyola University



GRADUATE DIVISIONS

1969-1970

# Administration

## BOARD OF DIRECTORS OF THE UNIVERSITY

VERY REV. HOMER R. JOLLEY, S.J.  
 REV. THOMAS H. CLANCY, S.J.  
 REV. FRANCIS BENEDETTO, S.J.  
 REV. JOHN A. CRONIN, S.J.  
 REV. J. JOSEPH MOLLEY, S.J.  
 REV. JOHN H. MULLAHY, S.J.  
 REV. BERNARD A. TONNAR, S.J.  
 \*REV. MICHAEL WALSH, S.J.  
 \*REV. MICHAEL F. KENNELLY, S.J.  
 \*REV. WILLIAM J. RIMES, S.J.  
 \*MR. MURRAY C. FINCHER, *Chairman,*  
*Loyola Board of Regents, ex officio*  
 \*HON. PRESTON L. SAVOY, *Vice-Chairman,*  
*Loyola Board of Regents*

\* Board of Advisors

## OFFICERS OF ADMINISTRATION

REV. HOMER R. JOLLEY, S.J., Ph.D., *President*  
 REV. THOMAS H. CLANCY, S.J., *Vice-President for Academic Affairs*  
 JOHN L. ECKHOLDT, M.B.A., *Vice-President for Business and Finance*  
 JOHN F. CHRISTMAN, Ph.D., *Vice-President for Research*  
 FRANK M. WAGAR, J.D., *Dean, Student Affairs*  
 FRANK E. CRABTREE, Ph.D., *Dean, College of Arts and Sciences*  
 G. RALPH SMITH, Ph.D., *Dean, College of Business Administration*  
 JOE B. BUTTRAM, Ph.D., *Dean, College of Music*  
 ROBERT SABOLYK, B.S., *Dean of Men*  
 MRS. LYNNE H. NEITZSCHMAN, B.A., *Dean of Women*  
 REV. HAROLD F. COHEN, S.J., *University Chaplain*  
 RAYMOND P. WITTE, A.B., Ph.D., *Director of Evening Division*  
 EARL RETIF, J.D., *Registrar*  
 JAMES G. VOLNY, M.S.L.S., *Librarian*  
 REV. JOHN H. MULLAHY, S.J., *Chairman, Department of Biological Sciences*  
 REV. EDWARD T. COLES, S.J., *Chairman, Department of Education*  
 ANTHONY DI MAGGIO, Ph.D., *Chairman, Department of Chemistry*  
 ROBERT T. McLEAN, Ph.D., *Chairman, Department of Mathematics*  
 DAVID G. KEIFFER, Ph.D., *Chairman, Physics Department*

## GRADUATE COUNCIL

|  |                         |
|--|-------------------------|
| DR. ANTHONY DI MAGGIO III, <i>Chairman</i> | MR. CHARLES E. BRASWELL |
| DR. WALTER G. MOORE                        | DR. HILDA C. SMITH      |
| MR. G. WALLACE LEFTWICH                    | DR. CARL H. BRANS       |

# Table of Contents

|   | Page |
|---|------|
| I. Academic Calendar .....  | 4-5  |
| II. Faculty .....   | 7    |
| III. The University   |      |
| History .....   | 14   |
| Purposes and Aims .....   | 15   |
| General Information .....   | 15   |
| Honorary Organizations .....  | 16   |
| IV. Student Expenses .....  | 18   |
| V. Graduate Divisions   |      |
| Biological Sciences .....   | 22   |
| Business Administration .....   | 28   |
| Chemistry .....   | 44   |
| Education .....   | 48   |
| College of Music .....  | 62   |
| Programs in Science Teaching<br>in Chemistry, Mathematics,<br>and Physics ..... | 70   |



# Academic Calendar

## 1969

- |           |       |   |
|-----------|-------|---|
| September | 1     | Labor Day. University holiday.  |
|           | 2     | Official opening of Fall Semester. Late registration fee charged.   |
|           | 5     | Latest date for registration.   |
|           | 9     | Latest date for adding courses. Latest date to drop a course and not have it recorded on the permanent record. Grades of WP or WF will be given in courses dropped after this date. |
| October   | 22    | Mid-semester grades due.  |
|           | 24    | Latest date for application of candidates for degrees to be conferred in May, 1970.   |
| November  | 1     | All Saints Day. University holiday.   |
|           | 22    | Graduate Admissions examination.  |
|           | 25    | Latest date to drop a course in the Fall Semester.  |
|           | 26    | Thanksgiving holidays begin after last class.   |
| December  | 1     | Classes resume.   |
|           | 8     | Immaculate Conception. University holiday.  |
|           | 15    | All credentials due for applicants to the Spring Session, 1970.   |
|           | 13-20 | Final examinations. Christmas holidays begin after last class.  |

## 1970

- |          |       |  |
|----------|-------|--|
| January  | 22-23 | Registration for the Spring Semester; 9:00 a.m.-4:00 p.m.; 6-9:00 p.m. Evening Division. |
|          | 26    | Classes begin for Spring Semester.   |
|          | 26    | Late registration fee is charged.  |
| February | 2     | Latest date for registration.  |
|          | 2     | Latest date for adding courses. Latest date to drop                                      |

a course and not have it recorded on the permanent record. Grades of WP or WF will be given in courses dropped after this date.

9-11 Mardi Gras. University holidays.

|       |       |   |
|-------|-------|---|
| March | 18    | Mid-semester grades due.  |
|       | 25    | Easter holidays begin after last class.   |
|       | 31    | Classes resume.   |
| April | 25    | Latest date to drop a course in the Spring Semester.                                    |
|       | 27    | Theses due in final form from candidates for graduation.                                |
|       | 29    | University Award Day at 10:30 a.m.  |
| May   | 7     | Ascension Thursday. University holiday.   |
|       | 11-15 | Senior examinations.  |
|       | 22    | Baccalaureate Mass 10:00 a.m.   |
|       | 22    | Commencement exercises 8:00 p.m. Close of academic year. Final grades due from faculty. |

## 1970

| DECEMBER |     |     |     |      |     |     |
|----------|-----|-----|-----|------|-----|-----|
| SUN      | MON | TUE | WED | THUR | FRI | SAT |
|          | 1   | 2   | 3   | 4    | 5   | 6   |
| 7        | 8   | 9   | 10  | 11   | 12  | 13  |
| 14       | 15  | 16  | 17  | 18   | 19  | 20  |
| 21       | 22  | 23  | 24  | 25   | 26  | 27  |
| 28       | 29  | 30  | 31  |      |     |     |

| DECEMBER |     |     |     |      |     |     |
|----------|-----|-----|-----|------|-----|-----|
| SUN      | MON | TUE | WED | THUR | FRI | SAT |
|          |     | 1   | 2   | 3    | 4   | 5   |
| 6        | 7   | 8   | 9   | 10   | 11  | 12  |
| 13       | 14  | 15  | 16  | 17   | 18  | 19  |
| 20       | 21  | 22  | 23  | 24   | 25  | 26  |
| 27       | 28  | 29  | 30  | 31   |     |     |



# Faculty

## BIOLOGICAL SCIENCES

REVEREND JOHN H. MULLAHY, S.J., Ph.D., *Professor of Biology; Chairman of the Department of Biological Sciences and Graduate Division.*

A.B., St. Louis University, 1937; M.S., Fordham University, 1941; S.T.L., St. Louis University, 1946; Ph.D., Vanderbilt University, 1951.

JOHN G. ARNOLD, JR., Ph.D., *Professor of Biology; Chairman of the Department of Medical Technology.*

A.B., Ohio State University, 1930; A.M., Wesleyan University, 1932; Ph.D., New York University, 1934.

E. LETITIA BEARD, Ph.D., *Professor of Physiology.*

B.A., Texas Christian University, 1952; B.S., *ibid.*, 1953; M.T. (A.S.C.P.), 1953 M.S., Texas Christian University, 1955; Ph.D., Tulane University, 1961.

KAMEL T. KHALAF, Ph.D., *Professor of Entomology.*

B.S., University of Baghdad, 1944; M.S., University of Oklahoma, 1950; Ph.D., University of Oklahoma, 1953.

REVEREND ROLAND J. LESSEPS, S.J., Ph.D., *Assistant Professor of Biology.*

B.S. (Biology) Spring Hill College, 1958; Ph.D., The Johns Hopkins University, 1962.

JOHN T. McHALE, Ph.D., *Associate Professor of Plant Physiology.*

B.S., Iona College, 1955; Ph.D., University of Texas, 1965.

WALTER G. MOORE, Ph.D., *Professor of Comparative Anatomy and Ecology.*

A. B. Wayne University, 1934; A.M., University of Minnesota, 1938; Ph.D., *ibid.*, 1940.

JAGDISH M. UPADHYAY, Ph.D., *Associate Professor of Bacteriology.*

B.S., Gujerat University (India), 1951; M.S., University of Michigan, 1957; Ph.D., Washington State University, 1963.

## BUSINESS ADMINISTRATION

G. RALPH SMITH, Ph.D., *Dean of the College of Business Administration; Professor of Management.*

B.S., Hamilton College, 1937; M.S., Syracuse University, 1940; Ph.D., *ibid.*, 1954.

ALLAN BOUDREAUX, M.B.A., *Professor of Accounting.*

B.S., Loyola University, 1942; M.B.A., Louisiana State University, 1950; Louisiana C.P.A., 1953.

- WILLIAM P. CARR, M.B.A., *Professor of Accounting*.  
B.B.A., University of Texas, 1931; M.B.A., *ibid.*, 1934; Texas C.P.A., 1934; Louisiana C.P.A., 1939; F.P.C.A., (England), 1947.
- RUDOLF COPER, Ph.D., *Professor of Finance and Economics*.  
Ph.D., Friedrich Wilhelms University, Berlin, 1930.
- W. WILSON ELLIS, *Associate Professor of Management and Marketing*.  
B.A., University of Mississippi, 1939; M.B.A., University of Alabama, 1954; Cand. Ph.D., Mississippi State University.
- IRVING A. FOSBERG, Ph.D., *Professor of Marketing and Management*.  
B.S., New York University, 1937; M.A., Columbia University, 1938; Ph.D., New York University, 1940.
- GERALD N. GASTON, M.B.A., *Adjunct Professor*.  
B.A., Nicholls State College, 1959; M.B.A., Loyola University, New Orleans, 1965.
- G. WALLACE LEFTWICH, M.B.A., *Professor of Accounting*.  
B.S., Loyola University, New Orleans, 1947; M.B.A., Tulane University, 1950; Louisiana C.P.A., 1949.
- ALLEN R. NEWMAN, *Assistant Professor of Economics*.  
A.D., Stetson University, 1964; M.A. University of North Carolina, 1968; Cand. Ph.D., University of North Carolina.
- ARTHUR L. RAYHAWK, Ph.D., *Professor of Marketing*.  
A.B., Regis College, 1925; M.A., The Catholic University of America, 1927; Ph.D., *ibid.*, 1932.
- F. KELLEHER RIESS, M.B.A., *Assistant Professor of Accounting*.  
B.S., University of Southern Mississippi, 1963; M.B.A., Loyola University, New Orleans, 1966; Louisiana C.P.A., 1966.
- VERGIL D. REED, Ph.D., *Distinguished Visiting Professor of World Business*.  
B.Sc., Indiana University, 1922; M.S., Columbia University, 1928; Ph.D., *ibid.*, 1935.
- \*REVEREND HUBERT H. SCHIFFER, S.J., Ph.D., *Professor of Economics*.  
A.B., St. Miki College, Tokyo, Japan; M.A. Fordham University, 1952; Ph.D., *ibid.*, 1958.
- FELINO J. VALIENTE, Ph.D., *Associate Professor of Accounting and Finance*.  
B.B.A., Tulane University, 1956; M.B.A., *ibid.*, 1960; C.P.A., 1964; Ph.D., Louisiana State University, 1967.
- REVEREND JACQUES E. YENNI, S.J., Ph.D., *Professor of Economics*.  
B.S. in Eco., Loyola University, New Orleans, 1930; MA., St. Louis University, 1936; Ph.D., University of California, 1949.

---

\* On leave of absence.

ADVISORY COMMITTEE  
COLLEGE OF BUSINESS ADMINISTRATION

MAX BARNETT, *President*, Harry Hyman Tailors To The Trade, Inc.

J. SIDNEY BROWN, *President*, Dixie Building Materials Corp.

CHARLES M. CARRIERE, *Vice-President*, Wesson Division, Hunt Foods & Industries, Inc.

MARSHALL J. DAVID, *Chairman of the Board*, Franklin Printing Company, Inc.

JOHN HENRY EDWARDS, *Vice-President & Treasurer*, Jackson Brewing Company

ALPHONSE C. ELMER, *Partner*, Franklin Tax Service.

SIDNEY L. FARRELL, *President*, Seven-Eleven Food Stores.

WILLIAM F. FINEGAN, C.P.A., J. K. Byrne and Company.

MISS MARGARET E. LAUER, C.P.A., 1500 American Bank Bldg.\*

EDMOND G. MIRANNE, *President*, Security Homestead Association.

JOHN OULLIBER, *President*, National Bank of Commerce\*

GUS H. RATHE, JR., *Director of Education*, International Business Machines Corporation.

A. LOUIS READ, *President and General Manager*, WDSU-TV.

JAMES J. REISS, *President*, James J. Reiss Candy Company

ROY T. SESSUMS, *Vice-President*, Freeport Sulphur Company.

DAN E. STAPP, *Assistant Vice President*, Middle South Service, Inc.

F. WINTER TRAPOLIN, F. Winter Trapolin Insurance Agency.

F. POCHE WAGUESPACK, JR., *President*, Waguespack Pratt, Inc.

CHEMISTRY

ANTHONY DIMAGGIO, III, Ph.D., *Associate Professor of Biochemistry; Chairman of the Department.*

B.S., Loyola University, New Orleans, 1956; Ph.D., Louisiana State University, 1961.

JOHN F. CHRISTMAN, Ph.D., *Professor of Chemistry; Director of Academic Grants and Contracts.*

B.S., Notre Dame University, 1944; M.A., Indiana State University, 1946; M.S., University of Tennessee, 1950; Ph.D., *ibid.*

---

\* ex officio

- LEE P. GARY, *Assistant Professor of Chemistry*.  
B.S., Tulane University, 1963; Ph.D., The University of North Carolina, 1968.
- C. J. HEBERT, *Assistant Professor of Chemistry*.  
B.S., Southeastern Louisiana College, 1964; Ph.D., Notre Dame University, 1967.
- FRANK KOMITSKY, JR., Ph.D., *Assistant Professor of Chemistry*.  
B.S., Grove City College, 1960; Ph.D., The Ohio State University, 1964.
- ROBERT C. PETTERSON, Ph.D., *Research Professor of Chemistry*.  
B.S., University of Maine, 1947; Ph.D., University of Southern California, 1957.
- REVEREND ROBERT RATCHFORD, S.J., Ph.D., *Assistant Professor of Chemistry*.  
B.S., Spring Hill College, 1953; Ph.D., The Catholic University of America, 1958.
- JASJIT S. WALIA, Ph.D., *Associate Professor of Chemistry*.  
B.S.Honors, Punjab University, India, 1955; M.S.Honors, *ibid.*, 1956; Ph.D., University of Southern California, 1960.
- RICHARD S. WENDT, Ph.D., *Associate Professor of Chemistry*.  
A.B., Washington University, St. Louis, 1954; Ph.D., University of Wisconsin, 1960.

## EDUCATION

- REVEREND EDWARD T. COLES, S.J., M.Ed., *Associate Professor, Chairman of the Department*.  
B.S.C., Spring Hill College, Mobile, Alabama, 1952; B.S.T., Divinity School, St. Louis University, 1960; M.Ed., University of Houston, 1964.
- REVEREND MICHAEL ALCHEDIAK, S.J., *Visiting Lecturer*.  
B.S., Spring Hill College, Mobile, Alabama, 1960; S.T.L., St. Louis University, 1967; M.S., Marquette University, 1968.
- SAMPSON P. BORDELON, Ph.D., *Lecturer in Education*.  
B.S., St. Mary's University of San Antonio, 1949; M.Ed., Louisiana State University, 1953; Ph.D., University of Southern Mississippi, 1966.
- JAMES A. CHARBONNET, Ph.D., *Lecturer in Education*.  
B.A., Louisiana State University, New Orleans, 1964; M.Ed., Harvard, 1966; Ph.D. (Candidate) University of Chicago.
- REVEREND THOMAS H. CLANCY, S.J., Ph.D., *Associate Professor-Political Science*.  
A.B., Spring Hill College, 1948; M.A., Fordham University, 1951; S.T.L., Facultes Saint-Albert de Louvain, Belgium, 1956; Ph.D., London University, 1960.
- SISTER MARIE CONDON, Ph.D., *Assistant Professor of Education*.  
B.A., Southwestern University, Lafayette, 1950; M.A., Louisiana State University, Baton Rouge, 1954; Ph.D., *Ibid.* 1959.



- BROTHER CLEMENT COSGROVE, S.C., Ph.D., *Professor*.  
Ph.B., Loyola University, New Orleans, 1935; M.S., Fordham University, 1951; Ph.D., *ibid.*, 1955.
- REVEREND EDWARD A. DOYLE, S.J., Ph.D., *Visiting Lecturer*.  
A.B., Georgetown University, 1935; S.T.L., St. Louis University, 1947; Ph.D., Catholic University, 1953.
- REVEREND MORRIS J. DUFFY, S.J., M.A., *Visiting Lecturer*.  
A.B., Spring Hill College, 1958; M.A., Notre Dame University, 1965.
- VERONICA EGAN, M.A., *Assistant Professor of Education*.  
A.B., Upsala College, 1946; M.A., Fordham University, 1948.
- MARY C. FITZGERALD, M.Ed., *Assistant Professor of Education*.  
B.S., Loyola University, New Orleans, 1951; M.Ed., *ibid.*, 1956.
- SISTER MARY MICHAELINE GREEN, O.P., M.Ed., *Visiting Lecturer in Education*.  
B.S., St. Mary Dominican College, 1957; M.Ed., Marquette University.
- MARGARET HYMEL, M.A., *Visiting Lecturer in Education*.  
B.A., Tulane University, 1939; M.A., Louisiana State University, Baton Rouge, 1942.
- REVEREND ALBERT C. LOUAPRE, S.J., M.Ed., *Visiting Lecturer in Education*.  
B.S., Spring Hill College, 1954; S.T.L., St. Louis University, 1961; M.Ed., North Texas State University, 1967.
- REVEREND THOMAS J. NAUGHTON, S.J., M.Ed., 1959 *Visiting Lecturer in Education*.  
A.B., Spring Hill College, Mobile, 1958; M.A., *ibid.*, 1959; M.Ed., Loyola University of Chicago, 1965.
- ANTHONY SAVOCA, Ph.D., *Visiting Lecturer in Education*.  
B.S., Tulane University, 1949; M.S., Loyola University, New Orleans, 1954; Ph.D., Louisiana State University, 1965.
- REVEREND ROY E. SCHILLING, S.J., M.Ed., *Visiting Lecturer in Education*.  
A.B., Spring Hill College, 1952; S.T.L., St. Louis University, 1961; M.Ed., Loyola University, 1965.
- HILDA CHIARULLI SMITH, Ph.D., *Associate Professor of Education*.  
B.S., Syracuse University, 1941; M.A., *ibid.*, 1947; Ph.D., *ibid.*, 1955.
- RAYMOND SMITH, M.A., *Lecturer in Education*.  
B.A., Xavier University, New Orleans, 1946; M.A., *ibid.*, New Orleans, 1951.
- REVEREND JOSEPH B. TREMONTI, C.S.V., Ed.D., *Professor of Education*.  
B.S., Loyola University, Chicago, 1937; M.A., Catholic University of America, 1941; Ed.D., Temple University, 1950.
- BLANCHE PHYLLIS ZINK, Ph.D., *Assistant Professor of Education*.  
B.A., Southern Methodist University, 1948; M.A., *ibid.*, 1949; Ph.D., The University of Texas, 1965.



## MATHEMATICS

ROBERT T. McLEAN, Ph.D., *Professor of Mathematics; Chairman of the Department.*

B.S., Otterbein College, 1964; M.A., Bowling Green State University, 1950; Ph.D., University of Pittsburgh, 1961.

SR. SYLVESTER DE CONGE, Ph.D., *Assistant Professor of Mathematics.*

B.A., Seton Hill College, 1959; M.A., Louisiana State University, Baton Rouge, 1962; Ph.D., St. Louis University, 1968.

LEONORE G. DOODY, M.S., *Instructor in Mathematics.*

B.S., Loyola University, New Orleans, 1947; M.S., Tulane University, 1949.

JAMES K. FUGATE, Candidate-Ph.D., *Instructor in Mathematics.*

B.A., University of Texas, 1963; M.S., Texas Christian University, 1967; Candidate, Ph.D., *ibid.*

KAZUMI NAKANO, Ph.D., *Assistant Professor of Mathematics.*

B.S., Hokkaido University, Japan, 1960; M.S., *ibid.*, 1962; Ph.D., Wayne State University, 1967.

ROBERT SCHWABAUER, Ph.D., *Assistant Professor of Mathematics.*

B.S., University of Nebraska, 1958; M.A., *ibid.*, 1960; Ph.D., *ibid.*, 1966.

ROBERT R. STEVENS, Ph.D., *Assistant Professor of Mathematics.*

BSEE, Purdue University, 1958; M.S., *ibid.*, 1959; Ph.D., University of Arizona, 1965.

JUDITH THREADGILL, M.S., *Instructor in Mathematics.*

B.A., Seattle University, 1961; M.S., University of Notre Dame, 1965.

LEWIS J. TODD, *Associate Professor of Mathematics.*

B.S., Loyola University, New Orleans, 1933; A.M., Tulane University, 1942.

REVEREND BERNARD TONNAR, S.J., *Associate Professor of Mathematics; Director of International Studies.*

A.B., St. Louis University, 1937; A. M., Catholic University of America, 1940; S.T.L., St. Louis University, 1946.

RAY H. WITHAM, *Assistant Professor of Mathematics.*

B.A., Illinois College, 1945; A.B.D., Math, Tulane University, 1955.

## MUSIC

JOE B. BUTTRAM, Ph.D., *Dean of the College of Music, Chairman of the Graduate Division.*

B.M., North Texas State University, Denton, 1954; M.M.E., *ibid.*, 1957; Ph.D., University of Kansas, 1966.

JAMES W. BASTIEN, M.M., *Assistant Professor of Piano.*

B.M., Southern Methodist University, Dallas, 1957; M.M., *ibid.*, 1958. Advanced study with Gyorgy Sandor.

CHARLES E. BRASWELL, R.M.T., *Associate Professor of Music Therapy, Chairman of the Department of Music Therapy.*

B.M., North Texas State University, Denton, 1950; M.M., American Conservatory of Music, 1952; R.M.T., University of Kansas, Lawrence, and the Menninger Clinic, Topeka, 1956.

MICHAEL J. CARUBBA, M.M.E., *Professor and Chairman of Applied Music.*

B.M.E., Loyola University, New Orleans, 1949; M.M., Louisiana State University, 1951; M.M.E., *ibid.*, 1951.

CHRISTINE CHRISTMAN, R.M.T., *Instructor.*

B.M.T., Loyola University, New Orleans, 1962; R.M.T., *ibid.*, 1962; M.S.W., Tulane University, New Orleans, 1966.

JOSEPH G. HEBERT, JR., *Director of Bands, Instructor in Music Education.*

B.M.E., Loyola University, New Orleans, 1963; M.M., Manhattan School of Music, 1965.

MILVERN IVEY, *Director of Choral Activities, Instructor in Voice.*

B.M., North Texas State University, 1962; Muc.M., *ibid.*, 1967.

BLANCHE PHYLLIS ZINC, Ph.D., *Assistant Professor of Education.*

B.A., Southern Methodist University, 1948; M.A., *ibid.*, 1949; Ph.D., The University of Texas, 1965.

## PHYSICS

DAVID G. KEIFFER, Ph.D., *Associate Professor of Physics; Chairman of the Department.*

B.S., Loyola University, New Orleans, 1952; M.S., University of Notre Dame, 1953; Ph.D., *ibid.*, 1956.

REVEREND FRANCIS A. BENEDETTO, S.J., Ph.D., *Professor of Physics; Executive Assistant to the President.*

A.B., St. Louis University, 1936; M.S., Fordham University, 1940; Ph.D., *ibid.*, 1946.

CARL H. BRANS, Ph.D., *Assistant Professor of Physics.*

B.S., Loyola University, New Orleans, 1957; Ph.D., Princeton University, 1961.

REVEREND JAMES C. CARTER, S.J., Ph.D., *Assistant Professor of Physics.*

B.S., Spring Hill College, 1952; M.S., Fordham University, 1953; Ph.D., The Catholic University of America, 1956; S.T.L., Woodstock College, 1959.

HENRY A. GARON, M.S., *Assistant Professor of Physics.*

B.S., Loyola University, New Orleans, 1947; M.S., University of Notre Dame, 1950.

CRESTON A. KING, JR., Ph.D., *Assistant Professor of Physics.*

B.A., Rice University, 1958; M.A., Duke University, 1962; Ph.D., Rice University, 1965.

REVEREND KARL A. MARING, S.J., Ph.D., *Professor of Physics.*

A.B., Woodstock College, 1915; A.M., *ibid.*, 1916; Ph.D., St. Louis University, 1932.

LAWRENCE J. STROHMEYER, M.S., *Associate Professor of Physics.*

B.S., Loyola University, New Orleans, 1938; M.S., New York University, 1940.

# The University

## HISTORY

The Jesuits arrived in New Orleans in 1847 for the purpose of establishing a college of liberal arts and sciences. A college preparatory academy and the College of the Immaculate Conception were established on February 1, 1849, at the corner of Baronne and Common Streets. In 1904 an Academy and College were opened on St. Charles Avenue opposite Audubon Park, and the two associated institutions were known as Loyola College.

In 1911 the College of the Immaculate Conception was united with Loyola College on the present Loyola campus. Loyola College was expanded to become Loyola University in the fall of the same year. Loyola University was duly incorporated by the General Assembly of Louisiana and empowered to grant all university degrees in 1912.

Although courses at the graduate level had been offered since 1886, the Board of Directors of the University suspended all graduate work in 1937. As the result of the work of a University Committee appointed by the President in September, 1949, to study the need of offering graduate work, the Department of Education was expanded to offer work at the graduate level for teachers, leading to a degree of Master of Education.

In subsequent years the Board of Directors of the University authorized the Department of Biological Sciences to offer graduate work leading to a Master of Science Degree in Biological Sciences, the Departments of Chemistry, Mathematics, and Physics to offer graduate courses leading to Master of Science Degree in Teaching, and the College of Business Administration to offer a Master of Business Administration Degree. In 1967, the College of Music offered a Master of Music degree.

## PURPOSES AND AIMS

The liberal arts college of Loyola University is conducted to promote the intellectual, moral, and aesthetic advancement of its students.

A liberal education at Loyola University endeavors to produce the mature development of the student through a carefully integrated liberal arts curriculum. This curriculum includes a liberalized introduction to a special area of learning selected by the student. In this way, adequate provision is made for a student's advancement into scholarly or professional studies.

The curriculum is designed to develop habits of clear, logical, and accurate thinking through such courses as logic, mathematics, and the natural sciences; the ability for clear and forceful self-expression through such courses as composition, language, and public speaking; a knowledge of human nature through courses in literature; a knowledge of the past through courses in history; a knowledge of the present, a contemporary social awareness, and an attitude of social and civic responsibility through courses in social sciences and modern history; a clear knowledge and appreciation of ultimate religious, philosophical, and moral values through courses in theology and philosophy.

## COMPUTER CENTER

The University operates an IBM electronic computer center located on the 5th floor of the Science Complex. The computer is used primarily for graduate and undergraduate students in educational and research projects.

## TUITION LOANS

The University participates in the National Defense Student Loan Program. Fulltime graduate students may borrow up to \$1000 per year. Interest is 3% per year. Students are given 10 years in which to repay. Interest and payments do not begin until the student is graduated or stops his college program. For students who subsequently teach, 10%



of the loan is written off for each year taught in a public school up to five years.

## HONORARY FRATERNITIES AND ORGANIZATIONS

In order to give recognition and encouragement to high standards of scholarship among the students, honorary scholastic fraternities and organizations have been established on the campus.

### BETA ALPHA PSI

The purposes of this national, professional and honorary fraternity are: to stimulate interest and cooperation in accounting; to encourage and foster the ideal of service as the basis of the accounting profession; to promote the study of accountancy and its highest ethical standards; to act as a medium between professional men, instructors, students and others who are interested in the development of the study or profession of accountancy; to develop high moral, scholastic and professional attainments in its members; and to encourage cordial intercourse among its members and the professional generally. Accounting majors of junior standing with a 3.00 quality point average in four completed accounting courses and a 2.50 average in all other subjects shall be considered for election to membership. Graduate students who achieve high scholastic standing are also eligible.

### BETA GAMMA SIGMA

The purposes of this national honor society are: to encourage and reward scholarship and accomplishment among the students of business administration; to promote the advancement of education in the art and science of business and to foster integrity in the conduct of business operation. Only seniors who rank in the upper tenth of their graduating class and juniors among the highest four percent of their class are considered for election to membership. Graduate students who achieve high scholastic standing are also eligible.



## KAPPA DELTA PI

Kappa Delta Pi is an honor society in education. Here at Loyola, Zeta Rho Chapter, which was established on October 8, 1949, taps those undergraduates who achieve a quality point average of 3.3 and graduate students who earn a quality point average of 3.5. Kappa Delta Pi has as its journal, THE EDUCATIONAL FORUM, which is one of the leading scholarly journals in education. Kappa Delta Pi's main objective is "to encourage high professional, intellectual and personal standards and to recognize outstanding contributions to education."

## RHO PHI THETA

Rho Phi Theta is a mathematics fraternity. Its objectives are identical with those of Pi Mu Epsilon, the National Honors Mathematics Fraternity: the promotion of scholarly activity in mathematics among students in academic institutions and among the staffs of qualified non-academic institutions.

## TRI BETA

The Eta Lambda chapter of Tri Beta, national honor biology Society, was established at Loyola on March 24, 1956. It unites biology, pre-medical, pre-pharmacy, pre-dental, and medical technology students into a single group who possess a common interest in biology. Its purpose is to instill in its members a desire for scientific knowledge, research and truth.

# Student Expenses

All students are required to pay full tuition, fees, etc., at the time of registration and on the days assigned. A student has not officially completed registration until he has properly satisfied his financial obligations. Students who do not complete registration during the assigned time must pay a late registration fee. Resident students are required to pay room and board on the day of registration.

The university reserves the right to change, with due notice, any of the expenses listed and to withhold statements of honorable dismissal, grade reports, transcript of record, diploma, etc., until all indebtedness to the University has been discharged or until satisfactory arrangements have been made with the Vice President for Business and Finance. Also, no student will be allowed to register subsequently as long as his prior financial indebtedness has not been satisfied. Exceptions to regulations regarding university charges will be made only by the President of the University.

Students are encouraged to make payments by check, money order, etc., made payable to Loyola University. Cash transactions are discouraged.

## SUMMARY OF ANNUAL EXPENSES

### *Application:*

|  |          |
|--|----------|
| Application Fee (not refundable) ..... | \$ 10.00 |
|--|----------|

### *Tuition:*

|   |          |
|---|----------|
| Full time or part time (per sem. hr.) .....                     | 38.00    |
| Full time—Doctoral program in Chemistry<br>(per semester) ..... | 1,200.00 |

### *General fees:*

|   |       |
|---|-------|
| University fee—full time students<br>(per year) ..... | 30.00 |
|---|-------|

## 19

|   |       |
|---|-------|
| University fee—part time students<br>(per year) .....     | 15.00 |
| Student Center fee—full time students<br>(per year) ..... | 20.00 |
| Student Center fee—part time students<br>(per year) ..... | 10.00 |

|  |                    |
|--|--------------------|
| Room Guarantee Deposit (not refundable but applicable to Room and Board) ..... | 50.00              |
| Room and Board (per academic year)   |                    |
| Men ..... (range) .....  | \$ 950.00–1,050.00 |
| Women ..... (range) .....  | 1,010.00–1,260.00  |
| Resident student fees  |                    |
| Damage and breakage (refundable) .....   | 25.00              |
| Key deposit (refundable) .....   | 2.00               |

|  |       |
|--|-------|
| Late Registration Fee .....                          | 20.00 |
| Registration Fee for Degree only<br>(per sem.) ..... | 25.00 |
| Subject Change Fee (per course) .....                | 5.00  |
| Early/Late Examination fee .....                     | 10.00 |
| Additional Transcript fee .....                      | 2.00  |
| Student Health Insurance (approximately)....         | 23.00 |

|                                    |       |
|------------------------------------|-------|
| Graduation fee .....               | 25.00 |
| Cost of Cap and Gown—Masters ..... | 11.00 |
| Doctors .....                      | 17.00 |

*The Early/Late Examination Fee* will be charged for any examination taken on other than the assigned date, no matter what the excuse. No early/late examination will be given without the written permission of the Dean.

*The Transcript Fee.* For all transcripts sent after the first one there is a \$2.00 fee. However, when a student requests more than five transcripts at one time he is charged \$2.00 for the first copy and fifty cents for each additional one.

## MONTHLY PAYMENTS

Although Loyola University has no monthly payment plan of its own, the university urges students to subscribe to *The Tuition Plan, Inc.*, 575 Madison Avenue, New York, New York 10022. This plan is a special convenience offered to those who prefer to pay tuition in equal monthly installments. The following plans are optional and available at the cost indicated.

|                       |                         |
|-----------------------|-------------------------|
| One Year Plan .....   | ( 8 payments)           |
|                       | 4% more than Cash Price |
| Two Year Plan .....   | (20 payments)           |
|                       | 5% more than Cash Price |
| Three Year Plan ..... | (30 payments)           |
|                       | 6% more than Cash Price |
| Four Year Plan .....  | (40 payments)           |
|                       | 6% more than Cash Price |

The two, three and four year plans include Parent Life Insurance for qualified parents. This insurance coverage provides funds for the cost of the remaining period of schooling covered by the contract, if the parent who has signed the contract dies. A descriptive pamphlet will be sent upon request from the Director of Admissions. *The Tuition Plan, Inc.* will accept applications only from full time students.

Those students applying for Tuition Plan are advised to make all arrangements sufficiently in advance that on the day of registration the Finance Office will have received a signed agreement from the *Tuition Plan, Inc.*

## REFUND POLICY

1. *Tuition*: Students who withdraw from the university are entitled to a refund of a percentage of their tuition. The date of receipt of the withdrawal notice by the Registrar will determine the amount of tuition refund. No refunds are made when a student is suspended or dismissed for academic or disciplinary reasons. Only tuition is refundable. Refunds are made on the following basis:

- a. If formal notice is received within one week of the beginning of the semester refund of 80% tuition is made.
- b. If formal notice is received within three weeks of the beginning of the semester a refund of 60% of tuition is made.
- c. If formal notice is received within five weeks of the beginning of the semester a refund of 40% of tuition is made.
- d. No refunds are allowed after the fifth week of classes.

2. *Room and Board*: Students boarding in university dormitories who are dismissed or suspended from school during the semester are not entitled to any refund.

Students in good standing who voluntarily withdraw from the university during the semester are not entitled to any refund on the cost of their room. They may receive a refund on board, prorated from the date of withdrawal.

Refunds are a percentage of the total tuition payable in the semester in which the student withdraws, not a percent of the amount paid by the student.

Special consideration regarding refunds will be given to students either voluntarily entering the Armed Services or being drafted.



# The Graduate Division of Biological Sciences

Rev. John H. Mullahy, S.J., Ph.D., *Chairman*

## PURPOSE

The graduate program in the Biological Sciences is designed to provide a broad training for those who aspire to be teachers and for those who wish to improve their biological background by additional subject matter. The studies in this program provide an excellent preparation for advanced research and doctorate work. The program provides facilities for advanced courses in each of the three branches of the Department of Biological Sciences. At the present time the program leads to the Master of Science degree in Biological Sciences.

## ADMISSION

Any student who has a Bachelor's degree from a recognized college and has undergraduate training in general biology, general bacteriology, and organic chemistry may qualify for the Master of Science degree in Biological Sciences.

Applications for admission must be filed with the Graduate School one month before the beginning of the session when the student plans to begin graduate work. The applicant for admission must write to the Registrar of each college previously attended and request an official transcript *in duplicate* of all undergraduate and graduate work. The transcript must be sent directly by the college to the Graduate School, Loyola University, New Orleans, Louisiana 70118. If the applicant for admission attended Loyola University as an undergraduate student, received his degree from Loyola University, and attended no other college or university after he received this degree no additional transcripts of work are required. Applicants are obliged to take both the general section and advanced sec-

tion of the Graduate Record Examination and to submit the results to the Graduate School before they can be accepted.

The Application for Admission and the transcripts of previous work are reviewed by the Executive Committee of the Department of Biological Sciences and the applicant is then notified of its action by the Graduate School.

For the first twelve hours of graduate work all students are accepted only on a provisional basis. Upon the satisfactory completion of this work (i.e. with a "B" average) the student becomes a classified graduate student. The Executive Committee of the Department of Biological Sciences has the final right to admit students to this category.

Candidates must demonstrate, by written examination if necessary, that they have a reading knowledge of at least one modern foreign language. In all cases the Executive Committee of the Department of Biological Sciences will determine this necessity.

In rare instances the Executive Committee of the Department of Biological Sciences may accept up to six semester hours of graduate credit from other recognized institutions.

#### RESIDENCE

Requirements are the same as those in the Graduate School of Education.

#### COURSE REQUIREMENTS

All students are obliged to complete at least one graduate course in each of the three main divisions of the department; viz, Botany, Zoology, and Microbiology. Other courses for a total of 24 hours are at the students' discretion, but it should be noted that all advanced courses in microbiology require at least one course in biochemistry as a prerequisite.

All graduate students are required to participate actively in the graduate seminar each semester that they are enrolled in the Graduate Division. This applies to both enrollment for course work and for thesis research.

The Master of Science degree in Biological Sciences requires twenty-four hours of course work and a thesis. A total point ratio of 3.00 is required for course work. This ratio is computed on the basis of four quality points for an "A", three quality points for a "B", and two quality points for a "C". No quality points are given for the mark of "F".

Along with the course requirements noted above, the candidate must present an acceptable thesis based at least partially on original research. This thesis must be completed and accepted by the Executive Committee of the Department one month before the date of graduation.

All graduate students are expected to gain some supervised teaching experience as part of their preparation for the Master of Science degree.

#### LIMIT OF TIME

Work completed more than six years before the date on which the Master's degree is to be conferred will not be accepted in fulfillment of requirements for the degree.

#### COURSES FOR QUALIFIED SENIORS AND GRADUATE STUDENTS

##### *Bl. 403—Cytology*

A study of the morphological, physiological, and biochemical properties of component parts of animal and plant cells. Prerequisite: General Biology. 4 sem. hrs.

##### *Bl. 404—Phycology*

A survey of the algae including both marine and freshwater forms. Prerequisite: General Botany. 4 sem. hrs.

##### *Bl. 407—Limnology*

A study of the physical, chemical, and biological factors determining biological productivity in inland waters. Field study of local lakes and streams gives the student experience in the use of methods and instruments for environmental analysis. Two lectures and six hours of laboratory or field work per week. Prerequisite: General Biology. 4 sem. hrs.

##### *Bl. 408—Entomology*

The taxonomy, life histories and general ecological relationships of the insects in general and especially of South Louisiana. Two hours lecture and four hours of laboratory or field work per week. Prerequisite: General Biology. 4 sem. hrs.

*Bl. 409—Bio-Ecology*

The relationships of animals to each other, to plants, and to the physical and chemical factors of the environment. Two lectures and six hours of laboratory or field work per week. Prerequisite: General Biology. 4 sem. hrs.

*Bl. 410—Field Zoology*

The taxonomy, life histories and general ecological relationships of the common animals (exclusive of the terrestrial insects, the birds, and the mammals) of South Louisiana and the New Orleans area particularly. Two hours lecture and six hours laboratory or field work per week. Prerequisite: General Biology. 4 sem. hrs.

*Bl. 411—General Parasitology*

A study of parasites in relation to disease. The various types of parasites, their life histories, and the conditions which they cause will be considered. Prerequisite: General Biology. 4 sem. hrs.

*Bl. 412—Physiology of the Bacteria*

Lectures, assigned reading, discussion and laboratory exercises dealing with the chemistry and physiology of microbial cells. Prerequisite: Bl. 301 and bio-chemistry. 4 sem. hrs.

*Bl. 413—Advanced Genetics*

Lectures, assigned reading, discussions and laboratory dealing with the molecular, organismic and population aspects of modern genetics. Prerequisite: Bl 312 or its equivalent. 4 sem. hrs.

*Bl. 415-16—Advanced General Physiology*

The physiology and biochemistry of cells and the comparative physiology of muscular, nervous and circulatory systems. Bio-electric activities, metabolic cycles, and internal secretions will be covered. Prerequisite: Bl. 303. 8 sem. hrs.

*Bl. 417—Endocrinology*

General consideration of the organs of internal secretion. Phylogeny, embryology, microscopic anatomy and physiology. 4 sem. hrs.

*Bl. 418—Advanced Endocrinology*

Recent advances in the biology of the organs of internal secretion. Lectures, conferences and laboratory work. 4 sem. hrs.

*Bl. 420—Plant Anatomy*

A consideration of the structure and development of seed plants (Primarily Angiosperms). Reference will be made to the relationships of anatomy and developmental patterns to the physiology and morphogenesis of the organism. The Plant Anatomy seminar will constitute a portion of this course. Prerequisite. General Botany. 4 sem. hrs.

*Bl. 422—General Virology*

The virus as a biological entity; physical and chemical properties of virus particles; representative animal, plant and bacterial viruses are considered. The rickettsiae are briefly treated. Prerequisite: Bacteriology and Biochemistry. 4 sem. hrs.



*Bl. 423—Mycology*

A survey of the fungi with emphasis on form and structure. Prerequisite: Bl 301. 4 sem. hrs.

*Bl. 424—Techniques in Bacteriology*

Consideration and application of current techniques used in bacterial physiology. Qualitative and quantitative determination of metabolites are examined as are methods for studying mutants, respiration, and enzymes. Prerequisite: Bl 301 and Biochemistry. 4 sem. hrs.

*Bl. 427—Physiology of the Fungi*

A study of the chemical activities of fungi as related to their nutrition growth, reproduction and fermentative ability. Emphasis will be placed on fungi important in industry and agriculture. 4 sem. hrs.

*Bl. 428—Plant Physiology*

Higher plants will be the principal object of study, with regard to their growth processes, water relations, and photosynthetic activities. The laboratory will illustrate modern techniques of investigation as well as the principles of the discipline involved. A weekly meeting devoted to a discussion of contemporary literature will be a part of the course. Prerequisite: General Biology and Organic Chemistry. 4 sem. hrs.

*Bl. 429—Medical Entomology*

A study of the arthropod groups of medical importance; their identification, general biology and life cycles; factors affecting man and domestic animals and control measures. Prerequisite: General Entomology. 4 sem. hrs.

*Bl. 433—Zoology for Teachers*

A teacher-training and review course for those engaged in, or preparing for, teaching high school biology. Emphasis is placed on the collection and preparation of local zoological materials for classroom use. Limited to graduate students in education. Prerequisite: General Zoology. 4 sem. hrs.

*Bl. 434—Developmental Biology*

Lectures, discussions and laboratory work, including original research in such areas of developmental biology as fertilization, nuclear-cytoplasmic interaction during development, biochemical development and developmental genetics. 4 sem. hrs.

*Bl. 435—Morphogenesis*

The development of the shape and pattern of plants and animals will be studied. Special emphasis will be given to the morphogenetic movements of cells and tissues during development. Current theories advanced to explain these movements will be examined and experiments to test these theories will be performed. Original research in this area will be taken up in the laboratory. 4 sem. hrs.

*Bl. 444-445—Graduate Seminar*

Prerequisite—advanced standing. 2 sem. hrs.

*Bl. 453—Radiation Biology*

A survey of the nature, measurement, and effect of ionizing radiations



in biological systems. Designed to acquaint the beginner with theory and methods of use of radiation as a research tool. Geiger counter techniques will be used primarily; absorption and half-life experiments, tracer methods, biological uptake and distribution, isotope dilutions and similar topics will be covered in lectures and in laboratory. Prerequisite: Discretion of professor in charge of the course.

4 sem. hrs.

*Bl. 501-502—Research in Bacteriology* ½ sem. hrs.

*Bl. 503-504—Research in Cytology* ½ sem. hrs.

*Bl. 505-506—Research in Plant Anatomy* ½ sem. hrs.

*Bl. 507-508—Research in Animal Ecology* ½ sem. hrs.

*Bl. 511-512—Research in Parasitology* ½ sem. hrs.

*Bl. 515-516—Research in Physiology* ½ sem. hrs.

*Bl. 512-522—Research in Virology* ½ sem. hrs.

*Bl. 529-530—Research in Entomology* ½ sem. hrs.

*Bl. 534-535—Research in Developmental  
Biology* ½ sem. hrs.

# The Graduate Division of the College of Business Administration

G. Ralph Smith, Ph.D., Chairman

## PURPOSES

The Master in Business Administration program is addressed to the education of qualified students in order that they may assume increased responsibilities and may initiate well predicated research into business processes.

Graduates of the program will be prepared to direct and develop enterprises whose objectives and accomplishments are consonant with the ideals and increasing complexity of Western Culture.

It is intended also to prepare individuals to become teachers at colleges and universities whose curricula are designed to develop leaders with an appreciation of the functions and role of business in maintaining a free enterprise society.

The program is also of sufficient breadth and depth to provide a foundation for persons seeking more advanced degrees.

## ADMISSION

Admission to the M.B.A. program is based upon the candidate's having a baccalaureate degree from a recognized institution, an undergraduate record of "B" or better, and personal qualifications of sound character and intellectual attainment. Applicants having less than a "B" undergraduate record may be granted conditional admission as explained below in this section.

Additionally, the candidate must achieve a satisfactory score on either the Miller Analogies Test or the Admission Test for Graduate Study in Business.

The Miller Analogies Test is administered through the Department of Education. Applicants who elect this examination should note the dates of its administration as announced in the Academic Calendar.

Additionally, it may be taken at other times through arrangement made directly either with the Graduate School or the Department of Education.

Prospective students who prefer to take the Admission Test for Graduate Study in Business should correspond directly with the Educational Testing Service, Box 966, Princeton, New Jersey 08540.

This examination is scheduled for November 1, 1969 and February 7, April 4, June 27 and August 8, 1970. Other dates may be announced by the Educational Testing Service.

Application forms for the graduate program may be secured from the Graduate School, Box 87, Loyola University, New Orleans, Louisiana 70118 or by telephoning 866-5471, Ext. 429. They must be accomplished in duplicate and returned directly to the Graduate School.

The applicant must request from the Registrar of *each institution* previously attended an official transcript *in duplicate* of all undergraduate, and where applicable, all graduate courses. These transcripts are to be sent directly to the Graduate School of Loyola University.

If the applicant graduated from Loyola University and attended no other college or university either before or after graduation, no additional transcripts are required.

The Graduate Studies Committee reviews the applicant's collegiate record, class standing, admission test score, and evidences of serious intent and past accomplishments. Admission is then granted or denied by the Committee.

#### RESIDENCE

Loyola University confers a degree only on those persons

who have completed an entire academic year of satisfactory work under the guidance of the University. The student must normally take all his graduate courses at Loyola University.

In certain instances the Graduate Studies Committee may be petitioned to accept a maximum of six semester hours of graduate work satisfactorily accomplished at another recognized college or university. Acceptance of advanced standing will be determined exclusively by the Graduate Studies Committee.

The status as a full-time student is determined by the Director. It will reflect whether the candidate is registered in the core curriculum courses or courses open only to graduate students. Regardless of the type of course enrollment all candidates are considered as graduate students.

Part-time students will ordinarily be limited to a maximum of six graduate hours during any one semester. Part-time candidates completing core requirements may exceed this semester hour limitation with the approval of the Director.

#### ATTENDANCE

If the professor of any graduate level course believes a candidate's record of attendance is such as to jeopardize the satisfactory completion of the course, the Director will notify the candidate in writing of this professorial belief.

Continued unexplained, unsatisfactory attendance will cause the Graduate Studies Committee to review the candidate's standing in the program.

#### LIMIT OF TIME

Requirements for the degree must be met within four years from the date the candidate first registers for a course numbered 500 or over. If circumstances preclude accomplishment of the requirements within the prescribed period, the candidate may petition the Graduate Studies

Committee for permission to continue his work. No more than two petitions will be accepted.

### CURRICULUM

The curriculum is designed to provide for possessors of baccalaureate degrees in business and in arts, sciences, and engineering.

Candidates holding degrees in business usually may enter directly into a thirty hour program of graduate work.

All other candidates are required to complete required core curriculum courses. The courses which constitute the core curriculum originate in the areas noted:

Accounting (6 hours); Economics (6 hours); Business Law, Quantitative Methods, Corporation Finance, Marketing and Management, with semester hours as required.

Appropriate credit will be granted for satisfactory work in these areas taken by candidates in any recognized baccalaureate degree program.

All candidates during the final thirty hours of work are required to complete twelve semester hours of the following courses:

B.A. 500 Elements of Behavioral Sciences  
Eco. 500 National Income and Employment Analysis  
Eco. 501 Studies in Business Cycle Theories  
Mg. 502 Managerial Economics

The remaining eighteen hours may be selected from the courses which will provide professional competence in the area of a student's major interest. The functional fields are in accounting, economics, finance, management, and marketing. Each candidate will select courses from no less than two of the functional fields.

Candidates may also select courses from those in the Business Administration series numbered 500 or above.



The requisite number of course hours in the selected functional fields with any other electives is determined by the student only with the advice and consent of his advisor. No other program determination is acceptable.

### COURSE REQUIREMENTS

The candidate must achieve a "B" (3.0) average by the end of twelve semester hours of graduate level courses. This average must be maintained during the remainder of the program.

The Director will withdraw the candidacy of any student who has not achieved a "B" (3.0) average at the conclusion of the first twelve hours of graduate level courses. Additionally, any candidate whose average at the conclusion of the first six hours of graduate level courses indicates a satisfactory average cannot be achieved by the twelve hour limit will be denied further registration in the program.

Candidates completing core requirements preparing for entrance into graduate courses must meet the academic standards of the College of Business Administration. Courses numbered 500 or over are reserved exclusively for graduate students.

### COMPREHENSIVE EXAMINATION

A comprehensive written examination covering the required and selected functional fields shall be passed by the candidate at the conclusion of the course work. Comprehensive examinations are scheduled regularly in April, July and December.

A candidate who is registered, at the time the examination is scheduled, for *no more* than his final six hours of course work may request permission to take the examination at one of the above times. Permission to take the examination at times other than those regularly scheduled must be sought through a petition submitted to the Graduate Studies Committee. The acceptance of the peti-

tion is reserved to this Committee solely. An oral examination may be required also at the discretion of the Graduate Studies Committee.

Application for this examination is to be filed with the Director within four weeks after the beginning of the semester in which the degree is sought.

If the degree is deferred pending another examination, an interval of one semester, not including a summer session, must elapse before another comprehensive examination may be taken.

The second examination for the Master's degree is final. A petition for a third examination will not be entertained.

The term examination is construed to mean the entire comprehensive. Individual parts not passed may be retaken at the discretion of the Graduate Studies Committee.

#### GRADUATION

Students who intend to graduate should observe closely the Academic Calendar for the specific dates by which they must:

1. Notify the Registrar of their intention to graduate and accomplish the diploma form.
2. Pay graduation fee and cap and gown fees (if applicable) directly to the Finance Office. The charges are explained in the next section.
3. Request in writing from the Vice-President for Academic Affairs permission to receive the degree *in absentia* if a cogent reason exists for the student not being able to participate in the Spring Commencement.

Individuals who receive their degrees at the end of the Summer Session are not required to do this.

Persons who have met successfully all the requirements for the degree at the end of the Fall Semester of the aca-

demic year should register for degree only at the appropriate time.

The notation relevant to *in absentia* conferred of the degree applied to candidates who complete all requirements for the degree at the end of the fall semester.

### PETITIONS

All student communications to the Graduate Studies Committee should be prepared in consultation with the Director, on the appropriate petition form available from his office.

The petition should be used for seeking the waiver of any requirement of the Graduate Program or requesting review by the Graduate Studies Committee of any action taken by it or the Director relative to the petitioner.

### GRADES

The grading scale used is A, B, C, F (failure), I (incomplete), and W (withdrawn). Grade point averages are computed on a four point scale: A=4 points; B=3 points; C=2 points.

Students who for valid and pertinent reasons cannot meet all the requirements for the satisfactory completion of a course during its scheduled period of instruction must arrange with the instructor to receive a grade of incomplete (I) for the course. Failure to make this arrangement will result in a grade of failure (F) for the course.

Grades of incomplete which are not removed within one year from the date on which the course began are automatically converted to failure (F) on the student's record.

Official grade reports are issued by the Registrar of the University. Official transcripts of courses and credits may be obtained from the Registrar. One transcript is provided to the student at no cost. Each additional copy costs \$2.00, except that if more than five are requested at any one time the charge for the third and subsequent copies is \$0.50 each.

### CLASS MEETINGS

Classes in the 400 and 500 series meet for one session of two and one half hours duration each week. The instructor has the privilege of lengthening this period if he deems it necessary. Additional sessions may be required at his discretion.

Classes numbered 300 or lower meet as prescribed by the Dean of the College of Business Administration or the Director of the Evening Division.

### AUDITING OF COURSES

Any person desiring to audit a graduate level course is charged the regular tuition. Permission must be secured from the Director.

Persons desiring to audit a core curriculum course are charged on the same basis as part-time students of the College of Business Administration. Permission of the Dean of the College of Business Administration is required.

### WITHDRAWAL

A candidate wishing to withdraw must comply with the procedures as established by the College of Business Administration.

Withdrawal is initiated with the Director. Tuition refunds are at the discretion of the Treasurer of Loyola University. No refunds will be granted after the first five weeks of the semester have passed.

### REFUND POLICY

1. Tuition: Students who withdraw from the University are entitled to a refund of a percentage of their tuition. The date of receipt of withdrawal notice by the Registrar will determine the amount of tuition refund. No refunds are made when a student is suspended or dismissed for academic or disciplinary reasons. Only tuition is refundable. Refunds are made on the following basis:

a. If formal notice is received within one week of the beginning of the Semester opening, a refund of 80% of the tuition is made.

b. If formal notice is received within three weeks of the beginning of the Semester opening, a refund of 60% of tuition is made.

c. If formal notice is received within five weeks of the beginning of the Semester opening, a refund of 40% of tuition is made.

d. No refunds are allowed after the fifth week of classes.

## COURSE OFFERINGS

### BUSINESS ADMINISTRATION

All courses in the 400 and 500 series are scheduled to begin no earlier than 6:15 p.m., Mondays through Fridays. . . .

#### *B.A. 500—Elements of Behavioral Sciences*

A systematic study is made of the fundamental concepts and principles of sociology, psychology, and anthropology as they contribute to the understanding of business activities. 3 sem. hrs.

#### *B.A. 502—Statistical Surveys*

The course is intended to familiarize the student through reading and experience with the methods and procedures of statistical surveys. The design and administration are considered in detail. 3 sem. hrs.

#### *B.A. 501—Quantitative Decision Methods*

The course surveys quantitative methods useful in decision making for managers. Linear programming, probability theory, queuing theory, game theory, and symbolic logic are included. 3 sem. hrs.

#### *B.A. 506—Econometrics*

The intent of this course is to introduce the student to some of the basic methods, principles, and problems involved in modern econometric research. 3 sem. hrs.

#### *B.A. 512—Business Ethics*

Businessmen are faced with many decisions that involve ethical judgments: fair pricing, gifts, "payola", bribes, call girls, advertising, credit practices, industrial relations, codes of ethics, etc. This course offers case studies of modern business decisions and their social consequences. 3 sem. hrs.



## ACCOUNTING

*Acc. 500—Contemporary Accounting Theory and Problems I*

An analysis and evaluation is undertaken of currently acceptable accounting standards and conventions with emphasis placed upon pronouncements of authoritative groups. Contemporary problems are related to the application of these standards and conventions.

3 sem. hrs.

*Acc. 501—Contemporary Accounting Theory and Problems II*

Standards and techniques underlying the preparation of consolidated financial and operating statements are studied. Contemporary problems relating to consolidations are included.

3 sem. hrs.

*Acc. 502—Advanced Auditing*

Auditing techniques and procedures in relation to contemporary problems and acceptable auditing standards are studied.

3 sem. hrs.

*Acc. 508—Advanced Cost Accounting*

An interpretation and evaluation of concepts of production and distribution costs are studied for managerial control purposes.

3 sem. hrs.

*Acc. 510—Research in Taxation*

The methodology of research in Federal income taxation is examined. Emphasis is placed on applied research to tax problems. The intent is to develop research techniques and the ability to reach conclusions and to make recommendations predicated upon a synthesis of code, regulations, and court decisions.

3 sem. hrs.

*Acc. 520—Seminar in Accounting*

Selected problems and topics in accounting are examined. Permission of the graduate faculty in accounting is a prerequisite.

3 sem. hrs.

*Acc. 522—Tutorial in Accounting*

Individual reading and research in a selected area is conducted under the direction of a member of the graduate accounting faculty. Permission of the individual faculty member is a prerequisite.

3 sem. hrs.

## ECONOMICS

*Eco. 500—National Income and Employment Analysis*

The course treats systematically the concepts and methods used in national income accounting and reviews theories relevant to national product and income stability.

3 sem. hrs.

*Eco. 501—Studies in Business Cycle Theories*

The contributions of leading economists to theories of the business cycle are examined.

3 sem. hrs.

*Eco. 502—The Structure of Industry*

The institutional and market structures and activities of the principal industries of the United States are studied. 3 sem. hrs.

*Eco. 504—Wage Theory and Practice*

The course covers the wage theories of Ricardo, Mill, and Marx, productivity theories, wage structures, long-run trends in real wages, and the problems of a general wage theory. 3 sem. hrs.

*Eco. 506—Social Security*

The course is concerned with institutional and economic aspects of social security programs in the United States and selected foreign countries. 3 sem. hrs.

*Eco. 508—Advanced Studies in the History of Economic Thought*

The principal theoretical analysis and policy recommendations of prominent economists from the Mercantilists to the present are studied. 3 sem. hrs.

*Eco. 509—International Economics*

The theory and practice of international economic and financial relations are studied as well as their role in the search for stability and growth. 3 sem. hrs.

*Eco. 512—Theory of Economic Development*

General theories of economic development, from classic to Keynesian, are explored to serve as a basis for comparison and discussion of the present partial theories of underdevelopment. 3 sem. hrs.

*Eco. 513—Economic Development in Underdeveloped Countries*

The course consists principally of case studies selected to illuminate the diversity of problems defying theoretical generalization. 3 sem. hrs.

*Eco. 515—Advanced Price Theory*

A rigorous analysis of the various market structures and the pricing process for commodities and for productive services as taking place within these market forms. A systematic study of the conventional "tools" of the theory of price is included, and also some consideration given to possible divergences between practice and theory in the pricing process. 3 sem. hrs.

*Eco. 516—Competition, Monopoly and Public Policy*

The main focus on the course is on the anti-trust laws, their interpretation by the courts, a comparison of the legal and economic concepts involved and the effect of the laws on the economy. The "natural monopolies" and their regulation will also be studied. 3 sem. hrs.

*Eco. 517—Selected Studies in Labor Economics*

This course investigates the impact of trade unionism in the United States, through its collective bargaining and political action activi-

ties, on inflation, on employment, the wage structure, the functional and size-distribution of national income, and economic growth.

3 sem. hrs.

*Eco. 520—Seminar in Economics*

Selected problems and topics in economics are examined. Permission of the graduate faculty in economics is a prerequisite.

3 sem. hrs.

*Eco. 522—Tutorial in Economics*

Individual reading and research in a selected area is conducted under the direction of a member of the graduate economics faculty. Permission of the individual faculty member is a prerequisite.

3 sem. hrs.

## FINANCE

*Fn. 500—Problems in Money, Banking and Prices*

This course is designed to deal with the organization, functioning, and problems of the present day money and banking system of the United States with particular attention given to the Federal Reserve System.

3 sem. hrs.

*Fn. 502—Monetary and Fiscal Problems*

A study is made of monetary and fiscal theories and problems in a modern industrial economy; of the role of Central banking; of theories of interest and the rate of interest and of the impact of monetary and fiscal operations on the general economy. Study is directed mainly to domestic facets but international aspects are also considered.

3 sem. hrs.

*Fn. 506—Financial Management*

The principles of finance are used as the basis for the development of techniques useful in the area of financial management. The vehicle for the accomplishment of this objective is a series of actual and simulated cases involving analysis and decision making by the student.

3 sem. hrs.

*Fn. 510—International Finance*

Foreign exchange and investment problems are studied intensively.

3 sem. hrs.

*Fn. 512—Research in Finance*

Individual research presented at class meeting for critical appraisal and review. One two-hour recitation. Research topics include: capital budgeting; cash budgeting; funds statements; pro-forma statements; and financial statement analysis.

3 sem. hrs.

*Fn. 520—Seminar in Finance*

Selected problems and topics in finance are examined. Permission of the graduate faculty in finance is a prerequisite.

3 sem. hrs.

*Fn. 522—Tutorial in Finance*

Individual reading and research in a selected area is conducted under the direction of a member of the graduate finance faculty. Permission of the individual faculty member is a prerequisite.

3 sem. hrs.

## MANAGEMENT

*Mg. 500—History of Management Thought*

The writings of Owen, Fayel, Follett, Taylor, Sheldon, and other leaders in management thought are studied. 3 sem. hrs.

*Mg. 502—Managerial Economics*

Economic theory, both qualitative and quantitative, in context with business practices is presented with the intent of demonstrating its value in decision making and forward planning. 3 sem. hrs.

*Mg. 508—Data Processing Principles, Methods and Controls*

The course is designed to acquaint the student with modern data processing principles, methods, and controls. The student is introduced to actual machine programming and operations in order that he may evaluate types of equipment of solving data processing problems. Accounting control and auditing techniques and problems are discussed. Specific case problems are programmed. 3 sem. hrs.

*Mg. 509—Advanced Data Processing*

Systems design, basic assembly language and report program generator programming are covered. Mg. 508 or the permission of the instructor is a prerequisite for this course. 3 sem. hrs.

*Mg. 520—Seminar in Management*

Selected problems and topics in management are examined. Permission of the graduate faculty in management is a prerequisite. 3 sem. hr.

*Mg. 522—Tutorial in Management*

Individual reading and research in a selected area is conducted under the direction of a member of the graduate management faculty. Permission of the individual faculty member is a prerequisite. 3 sem. hrs.

## MARKETING

*Mk. 500—Modern Marketing*

An intensive study, analysis and interpretation of management decisions: includes both those which directly control marketing operations, and those which are affected by or dependent upon marketing operations. Marketing concepts pervade and orient the study. 3 sem. hrs.

*Mk. 501—Marketing Simulations*

Exploration and study of actual and potential applications of mathematical models and related techniques and disciplines in marketing management decision making. College algebra and business statistics are prerequisites. 3 sem. hrs.

*Mk. 502—Marketing Problems*

Current marketing situations are studied and appraised. The application of evolving marketing concepts in solving the problems thus exposed is intensive; due regard is given to the concurrent economic, political and social developments and trends. 3 sem. hrs.



*Mk. 504—Development of Marketing Theory*

The emergence and evolution of marketing theory in 19th century economic literature are explored. This provides the basis for the critical and intensive study of current trends in its continuing development during the 20th century. 3 sem. hrs.

*Mk. 505—Marketing Communications*

The flow of information between producer and buyer is studied and analyzed within the 'systemic' concept of decision controls. The "know-why" of sound decisions within the system is stressed rather than the "know-how" for their accomplishment. 3 sem. hrs.

*Mk. 512—International Marketing*

Significant similarities and differences in marketing problems in countries other than the United States are explored and analyzed. In addition to several cases, principles of the managerial and behavioral sciences are examined for potential application in specific countries. 3 sem. hrs.

*Mk. 513—World Business*

The explosive expansion of world business demands of potential executives in global firms a re-orientation of attitudes, heretofore, national or regional; and a widening foundation of knowledge concerning cultures, environments and governmental philosophies in other countries. Case studies, exploring these and related study areas, are used intensively to provide these needs. 3 sem. hrs.

*Mk. 520—Seminar in Marketing*

Selected problems and topics in marketing are examined. Permission of the graduate faculty in marketing is a prerequisite. 3 sem. hrs.

*Mk. 522—Tutorial in Marketing*

Individual reading and research in a selected area is conducted under the direction of a member of the graduate marketing faculty. Permission of the individual faculty member is a prerequisite. 3 sem. hrs.

### CORE CURRICULUM COURSES

Courses in the 400 series are open to qualified undergraduates and to graduate students who have not had undergraduate work in the areas represented by the courses. Courses in this series *cannot* be substituted for any course numbered 500 or over.

Course descriptions, other than for 400 series courses, are in the College of Business Administration, Loyola University Bulletin.

*Acct. 400-401—Financial Accounting*

These courses develop the basic concepts and techniques of accounting procedures and financial statement preparation and interpreta-



tion. The use of accounting for control and decision-making purposes by management is emphasized. Case analyses are required.  
6 sem. hrs.

### *Econ. 400—Statistics*

The course concentrates on statistical methods with particular reference to their application in business. Sources and collection of data and sampling procedures are studied. Included also are statistical measures and tests for validity and reliability, the construction and use of index numbers, problems of time series, regressions and correlations.  
3 sem. hrs.

### *Eco. 410-411—Micro & Macro Economics*

These courses are designed for students preparing for graduate studies in economics, business administration, or industrial engineering; and graduate students whose primary undergraduate discipline was not economics. The emphasis is the usual one appropriate to the two disciplines.  
3 sem. hrs.

### *Mk.-Mg. 400—Marketing and Management*

The principles of marketing are studied in combination with the principles of management. Theory and practice are blended through reading assignments and case studies.  
3 sem. hrs.

### *Fn. 402—Financing of Business Enterprises*

The functions of money and the nature of the monetary and banking systems of the United States are reviewed. The financing and concomitant requirements for organizing and establishing business enterprises are studied. The financial policies of corporations are emphasized.  
3 sem. hrs.

### *B.A. 404—Mathematics Applied to Business and Economics*

This course treats a wide variety of examples of modern mathematics used in solving business problems and formulating economic theory.  
3 sem. hrs.

### *B.A. 450—Business Law*

Application of law to business transactions; fundamental ideas of law in general; business forms; contracts; agency; negotiable instruments; and banking law.  
3 sem. hrs.

### *B.A. 451—Business Law*

A continuation of business law 450. Sales; personal property; partnerships and corporations; mortgages; real property; insurance, suretyship; and bankruptcy.  
3 sem. hrs.

## PROCEDURE FOR "ADDING" OR "DROPPING" COURSES

A Fee of \$5.00 is charged to "Add" a course and a fee of \$5.00 is charged to "Drop" a course. Obtain "Add" or "Drop" forms from the Director's Office.

The latest date to drop a course and have it not shown on

your record is listed in the Academic Calendar. Grades of "WP" or "WF" will be given in courses dropped after this date.

NOTE: If you are registered for more than one course and wish to drop only one, it is done by means of an "add" or "drop" slip. However, if you have no courses remaining after dropping, this is done by means of a "Withdrawal Form" which is supplied by the Director's Office. This does not mean that you are withdrawing from the University; it is merely to keep you in good standing. *If you fail to comply with the above procedures, you can jeopardize your academic standing.*

Mere cessation of class attendance does not constitute official withdrawal. The completed withdrawal forms must be received in the office of the Registrar by the dates indicated. These forms are to be obtained in the Registrar's Office or the Graduate Division Office.

### ADDENDUM

There are two units of the University which are sometimes confused. There is (1) an Evening Division of the University and (2) a Graduate Division of the College of Business Administration. Although both schedule classes in the Evening, the M.B.A. program is administered only by the College of Business Administration. Persons who are interested in the M.B.A. program should discuss all matters pertinent to this program with the College of Business Administration.

The Graduate School of the University and the Graduate Division of the College of Business Administration are also mistaken one for the other. The Graduate School is the one to call for applications and bulletins and for admission. The telephone number is 866-5471, Ext. 429. The Graduate Division of the College of Business Administration is the department to call once admission to the M.B.A. program has been granted. The telephone No. is 866-5471, Ext. 277-278.

# The Graduate Division of Chemistry

Anthony Di Maggio III, Ph.D., *Chairman*

## PURPOSE

The Graduate Program is designed to produce a professionally skilled scientist capable of conducting independent research. It is essentially an integrated course of study consisting of formal courses, seminar type discussion groups and increasingly independent research.

## ADMISSION

Any student who has a Bachelor's Degree from a recognized college or university and at least a minor in Chemistry is eligible for admission to the program. Application for admission forms is made to the Committee on Graduate Study in Chemistry at least one month before the beginning of a session.

A complete file consists of a completed application form, official transcripts sent from all colleges and universities attended and letters of reference from three (3) persons who are competent to judge on the applicant's scholastic ability and research potential. Graduates from North American Universities must have both aptitude and advanced section Graduate Record Examination scores sent directly to the Department of Chemistry. Those applicants whose native tongue is not English must present evidence of English proficiency such as TOEFL score or certificates from some university.

## BACKGROUND EXAMINATION

As soon as possible, the entering graduate student takes examinations which test his knowledge of undergraduate work in Organic, Physical, Inorganic and Analytical Chemistry. Deficiencies revealed by these examinations ordinarily

can be remedied by taking an appropriate undergraduate level course and obtaining a grade of "B" or better.

#### GUIDANCE COMMITTEE

The Committee on Graduate Studies will plan a course of study until the student selects a dissertational research advisor. This Committee will then appoint a Guidance Committee which will meet with the student at least once a semester to evaluate his progress and determine his future course of study. All decisions of the Guidance Committee are subject to review and approval of the Committee on Graduate Studies.

#### COURSE REQUIREMENTS

Precise requirements will be set for each student by his Guidance Committee, normally about 30 hours of graduate courses exclusive of research. Up to six hours of credit may be awarded for a Master's Degree earned elsewhere, or for advanced undergraduate courses. Students must register for Seminar each semester.

Credit may be given for graduate or upper division courses outside the field of Chemistry in related subjects, such as Physics, Mathematics, and Biology. We strongly recommend that a good course in technical writing be taken, if available. Credit may be given for one liberal arts course.

Certain specialized courses may be taken at other local Universities, such as Tulane and LSUNO, on advice of the student's Guidance Committee.

#### FOREIGN LANGUAGE

Proficiency in reading scientific German and either Russian or French must be demonstrated. The Chemistry Department will determine proficiency.

#### CUMULATIVE EXAMINATIONS

When a student is judged qualified by his Guidance Com-

mittee he may start taking the cumulative examinations. There are three written exams in the major field scheduled each semester. One exam must be passed by the end of the student's fourth semester; four must be passed by the end of the student's sixth semester.

### PROPOSITIONS

When four (4) cumulative exams have been passed, the student is considered to have demonstrated his competency in the subject matter of his major field. To prove that he is capable of originating and planning research (and of defending his ideas on his feet) he must carefully prepare and submit one or two propositions.

The proposition should be a practical proposal for original and significant research in any area of chemistry, but not an obvious extension of the student's thesis topic. Sufficiently original extensions may be used however. Good propositions may lead to published research.

### PH.D. DISSERTATION

A written dissertation on the student's research must be submitted in the form and by the deadlines set by University Regulations.

### FINAL ORAL EXAMINATION

After the dissertation has been accepted the student will present and defend it before his Guidance Committee. However, the final oral will not be limited to the subject of the dissertation and it is possible that someone could fail the final oral.

### GRADUATE TEACHING

As part of the requirements for the Ph.D. degree, each student will be required to do some teaching to the extent deemed necessary by the Department Chairman.



## GRADUATE COURSES

*Ch. 500-509—Seminar*1 sem. hr. each  
semester*Ch. 510-519—Laboratory Techniques in Area Chemistry*Courses intended to introduce students to special sophisticated methods used in research.  
2 or 3 sem. hrs.*Ch. 520-529—Selected Topics in Organic Chemistry*Courses in reaction mechanism, kinetics, spectroscopy, synthesis or classes of compounds taught on demand to interested students as needed.  
2 or 3 sem. hrs.*Ch. 530-539—Selected Topics in Inorganic Chemistry*Courses in reaction mechanisms, kinetics, spectroscopy, synthesis or classes of compounds taught on demand to interested students as needed.  
2 or 3 sem. hrs.*Ch. 540-549—Selected Topics in Physical Chemistry*Courses in thermodynamics, kinetics, spectroscopy, atomic theory, bonding and equilibria, etc., taught on demand to interested students as needed.  
2 or 3 sem. hrs.*Ch. 550-559—Selected Topics in Biochemistry*Courses in kinetics, enzymology, metabolism or classes of compounds taught on demand to interested students as needed.  
2 or 3 sem. hrs.*Ch. 600—Dissertation Research*

No academic credit as such. Terminal students engaged full-time in research will register to formalize classification as full time students for administrative purposes.

# Graduate Division of Education

Rev. Edward T. Coles, S.J., *Chairman*

## PURPOSE

The Graduate Division of the Department of Education is organized to offer advanced courses to members of the teaching profession for the purpose of understanding and analyzing the fundamental problems involved in the work of teaching, to acquire proficiency in the techniques of such understanding and analysis, and to become acquainted with the attempts of others toward the solution of these problems.

It is designed to offer preparation for the positions of elementary and secondary principals, supervisors, guidance counselors, and reading specialists in public, parochial and private schools, and for advanced preparation for elementary and secondary teachers.

## ADMISSION

The Graduate Division of the Department of Education offers courses of instruction leading to the degree of Master of Education for properly qualified students who have been admitted as classified graduate students. Applications for Admission must be filed with the Graduate School one month before the beginning of the session when the student plans to begin graduate work. The applicant for admission must write to the Registrar of each college previously attended and request an official transcript *in duplicate* of all undergraduate and graduate work. These transcripts must be sent by the college to the Graduate School, Loyola University, New Orleans, Louisiana 70118. If the applicant for admission attended Loyola University as an undergraduate student, received his degree from Loyola University, and attended no other college or university after he received this degree no additional transcripts of work are required.

The Application for Admission and the transcripts of

previous work are reviewed by the Executive Committee of the Department of Education. If these are approved by the Executive Committee, the applicant is then allowed to take the qualifying examination prescribed by the Department. The applicant is informed of this action and of the date and the time of the qualifying examination. Admission is based on the record of all previous work and the results of the qualifying examination. This admission must be obtained before admission to class.

For the first twelve hours of graduate work all students are accepted only on a provisional basis. Upon the satisfactory completion of this work (i.e. with a "B" average) the student becomes a classified graduate student. The Executive Committee of the Department of Education has the final right to admit students to this category.

A classified graduate student is one who has received the Bachelor's degree from a recognized college with a major in education, who has no prerequisite undergraduate work to make up, who has completed the upper division work satisfactorily (i.e. with a mark of "B" or better) in the undergraduate major in education, who is following a program of studies leading to an advanced degree, and who has been admitted by the Executive Committee of the Department of Education as a classified graduate student.

Applicants possessing degrees other than education are eligible for admission to the graduate program in education providing they have completed the education requirements for state certification or their equivalent.

A number of properly qualified out-of-course students may be admitted to take specific courses for graduate credit provided that the applicant has filed an application for admission and official transcripts of previous academic work with the Graduate School in ample time to receive notification of admission as an out-of-course student.

Among these may be students already possessing a Master's Degree and wishing to pursue the thirty hours beyond

the Master's level in order to receive salary increments. Students in good standing who are teachers pursuing hours beyond the Master's level may schedule 6 semester hours of graduate work during a semester plus nine hours in the summer by attending the six and three week terms.

Upon the successful completion of all course work and with the approval of the Executive Committee of the Department of Education, a classified graduate student is permitted to make application for the comprehensive examination. This application must be filed not later than two weeks after the opening of the semester in which the degree is sought.

#### NOTE

An undergraduate student of Loyola University who lacks not more than six semester hours of credit for a Bachelor's degree and who has attained an average of "B" or better in the upper division work of his undergraduate major in education may, upon the recommendation of his Dean and with the approval of the Executive Committee of the Department of Education, register for a maximum of six semester hours of graduate work provided that he meets all other requirements for provisional registration and provided that the total program of courses for credit and non-credit in graduate and undergraduate work does not exceed twelve semester hours.

#### ADVANCED STANDING

Loyola University does not confer a degree upon anyone who has not completed an entire academic year of satisfactory work under the guidance of the University. For the integration of the graduate program, the student should take all of his graduate courses for his Master's degree at Loyola University. A maximum of six semester hours, however, may be accepted in exceptional instances by the Executive Committee of the Department of Education.

### LIMIT OF TIME

Work completed more than six years before the date on which the Master's degree is to be conferred will not be accepted in fulfillment of requirements for the degree.

### RESIDENCE

For the degree of Master of Education, one academic year of residence is required in a program of at least 30 semester hours of graduate work. This work must include one semester, or its equivalent in summer terms, as a full-time student. Ordinarily two summer terms or two semesters of six hours each or a combination of one summer term and one six hours semester will be interpreted as meeting this minimum requirement. Not more than twelve semester hours may be scheduled by a full-time student in any one semester. A full-time teacher may schedule no more than 6 semester hours of graduate work during a semester. In the summer session 6 semester hours of graduate work may be scheduled for the six-week term and three hours during the three-week term.

### COURSE REQUIREMENTS

The candidate must complete thirty semester hours of graduate work in course with a passing mark in each course. The mark, "A", indicates excellent or superior work. The mark, "B", indicates satisfactory work acceptable for graduate credit. The mark, "C", indicates passing but unsatisfactory work at the graduate level. The mark, "F", is considered a failing grade. A point-hour ratio of 3.00 for graduate work is required for the Master's degree. This computation is based upon four quality points per semester hour for an "A", three quality points per semester for a "B", two quality points per semester for a "C", and no quality points for the mark of "F". The quality-point ratio is computed by dividing the total number of quality points earned by the total number of semester hours attempted.

A student who obtains a "C" is automatically placed on



probation and his status is subject to review by the Executive Committee.

A student who earns an "F" in a required course would have to repeat the course and earn a grade of "B" or better.

Any student earning two or more "F's" is automatically dropped from the degree program and will be ineligible to take courses in the Department of Education.

### COMPREHENSIVE EXAMINATION

A comprehensive written examination covering Philosophy of Education and the major field of work shall be passed by the candidate upon completion of his course work. Comprehensive examinations are scheduled regularly in November, April, and July.

When performance on the written examination is questionable, an oral examination is required of the candidate. When the degree is deferred pending another examination, the next examination must be postponed for a minimum of one semester, or for a longer period at the discretion of the Committee in Charge of the Candidacy. The second examination for the Master's degree is final. If unsuccessful, no further examination will be allowed.

### COURSE PROGRAM

The student's program is planned with his adviser from the full curriculum of graduate courses. A minimum of twelve hours must be completed in one specific area. The areas of specialization include the following: elementary and secondary administration and supervision, guidance, elementary education, and secondary education. This program is subject to the approval of the Executive Committee of the Department of Education.

The program will include the following core courses:

Ed. 401 Philosophy of Education

Ed. 490 Methodology of Educational Research

Ed. 491 Statistics in Education

## DEGREE PROGRAMS

## MASTER OF EDUCATION IN GUIDANCE AND COUNSELING

As a professional educator with practical experience in the classroom, a future school guidance counselor should have already acquired a thorough understanding of all aspects of human development and should be reasonably familiar with the educational setting in which he will work. In addition to this basic preparation, the program for school service personnel in the area of guidance and counseling seeks to fulfill the following specific objectives in training school guidance counselors by assisting each candidate: to understand the philosophy of guidance as an integral function in the educational process; to obtain a thorough knowledge of the basic concepts, principles, methods, procedures, and techniques of guidance and counseling; and to become duly certified, competent guidance counselors adequately prepared and completely qualified to implement in the educational setting the knowledge and skills acquired.

The degree program for students specializing in the area of guidance and counseling, exclusive of standards for state certification, prescribes that each student obtain, in addition to the nine-hour core requirements, a minimum of twelve semester hours of credit from among the list of program offerings submitted below. The other nine hours of credit needed to make the total of thirty semester hours for the master's degree may be elective courses. A student may fulfill the State requirements for certification as a Guidance Counselor by completing the five courses marked with an asterisk comprising a total of fifteen semester hours of credit:

*\*Ed. 470—Principles of Guidance* 3 sem. hrs.

*\*Ed. 471—Analysis of the Individual: Educational Tests and Measurements* 3 sem. hrs.

*\*Ed. 474—Educational and Occupational Information* 3 sem. hrs.

|  |             |
|--|-------------|
| *Ed. 475— <i>Counseling</i>                                  | 3 sem. hrs. |
| Ed. 476— <i>Group Guidance</i>                               | 3 sem. hrs. |
| *Ed. 477— <i>Organization and Administration of Guidance</i> | 3 sem. hrs. |
| Ed. 479— <i>Practicum in Guidance</i>                        | 3 sem. hrs. |

#### MASTER OF EDUCATION IN READING

In addition to the core requirements for the Master's program, all M.Ed. students concentrating in the field of reading will be required to complete the following courses:

|  |             |
|--|-------------|
| Ed. 457— <i>Reading Foundations</i>          | 3 sem. hrs. |
| Ed. 458— <i>Problems in Teaching Reading</i> | 3 sem. hrs. |

Either—

|  |             |
|--|-------------|
| Ed. 455-456— <i>Internship in Developmental Reading Methods for the Secondary School Teacher</i><br>(Prerequisite—Ed. 457 and Ed. 458) | 6 sem. hrs. |
|--|-------------|

Or—

|   |             |
|---|-------------|
| Ed. 460-461— <i>Practicum/Developmental Reading Methods for the Elementary School Teacher</i><br>(Prerequisite—Ed. 457 and Ed. 458) | 6 sem. hrs. |
|---|-------------|

The remaining six required hours may be selected from the following courses:

|  |             |
|--|-------------|
| Ed. 431— <i>Mental Hygiene and Psychology of Personality Development</i>       | 3 sem. hrs. |
| Ed. 443— <i>Advanced Educational Psychology</i>                                | 3 sem. hrs. |
| Ed. 452— <i>Advanced Child Psychology</i>                                      | 3 sem. hrs. |
| Ed. 453— <i>Advanced Psychology of Adolescence</i>                             | 3 sem. hrs. |
| Ed. 471— <i>Analysis of the Individual: Educational Tests and Measurements</i> | 3 sem. hrs. |

This program meets the minimum standards for reading specialists as determined by the IRA with this limitation:

a minimum of three years teaching and/or clinical experience.

#### MASTER OF EDUCATION IN ADMINISTRATION

Graduate courses in Administration and Supervision provide experiences that enable the student to gain an understanding of the *processes* of administration and supervision in our changing society; likewise, the important role the principal plays in securing high quality education. The courses further examine the *methods of operation for effective leadership* and thus the student becomes better acquainted with the implication of leadership as well as the power structures, crucial issues, and the current problems involved in school administration and supervision.

In addition to the nine-hour core requirements of the Master's program, twelve hours of courses in the field of administration and supervision are required. The courses in administration and supervision are Ed. 420, Ed. 421, Ed. 422, Ed. 423, Ed. 424, Ed. 425, Ed. 426, and Ed. 432.

For elementary principal or supervisor, the following two courses are required:

*Ed. 420—School Administration: Elementary* 3 sem. hrs.

*Ed. 421—School Supervision: Elementary* 3 sem. hrs.

For secondary principal or supervisor, the following two courses are required:

*Ed. 422—School Administration: Secondary* 3 sem. hrs.

*Ed. 423—School Supervision: Secondary* 3 sem. hrs.

If individuals wish to prepare for both levels, Ed. 420, Ed. 421, Ed. 422, and Ed. 423 are required.

The suggested electives which would contribute to the program at the elementary level are:

*Ed. 440—Elementary School Curriculum* 3 sem. hrs.

*Ed. 442—Problems in Elementary Education* 3 sem. hrs.

The suggested electives which would contribute to the secondary level program are:

|   |             |
|---|-------------|
| <i>Ed. 450—Secondary School Curriculum and Co-curricular Activities</i> | 3 sem. hrs. |
| <i>Ed. 451—Problems in Secondary Education</i>                          | 3 sem. hrs. |
| <i>Ed. 453—Advanced Psychology of Adolescence</i>                       | 3 sem. hrs. |
| <i>Ed. 454—The Junior High School</i>                                   | 3 sem. hrs. |

For certification of parish or city school supervisor or school principal, in addition to the teaching certificate and successful teaching experience, the State of Louisiana requires a Master's degree from a regionally-accredited institution, including twelve semester hours of professional education at the graduate level.

#### MASTER OF EDUCATION IN ELEMENTARY EDUCATION

Students working for advanced preparation in Elementary Education are required to complete the nine-hour core requirement and twelve hours from the following courses:

|  |             |
|--|-------------|
| <i>Ed. 432—Supervision of Student Teachers</i>   | 3 sem. hrs. |
| <i>Ed. 440—Elementary School Curriculum</i>  | 3 sem. hrs. |
| <i>Ed. 442—Problems in Elementary Education</i>  | 3 sem. hrs. |
| <i>Ed. 443—Advanced Educational Psychology</i>   | 3 sem. hrs. |
| <i>Ed. 452—Advanced Child Psychology</i>   | 3 sem. hrs. |
| <i>Ed. 457—Reading Foundations</i>   | 3 sem. hrs. |
| <i>Ed. 458—Problems in Teaching Reading</i>  | 3 sem. hrs. |
| <i>Ed. 460-461—Practicum/Developmental Reading Methods for the Elementary School Teacher</i> | 6 sem. hrs. |
| <i>Ed. 463—Audio-Visual Aids</i>   | 3 sem. hrs. |

The other nine hours of electives may be taken from any graduate courses with the approval of their advisor.



## MASTER OF EDUCATION IN SECONDARY EDUCATION

Students working for advanced preparation in Secondary Education are required to complete the nine-hour core requirements and twelve hours from the following courses:

|   |             |
|---|-------------|
| <i>Ed. 432—Supervision of Student Teachers</i>  | 3 sem. hrs. |
| <i>Ed. 443—Advanced Educational Psychology</i>  | 3 sem. hrs. |
| <i>Ed. 450—Secondary School Curriculum and Co-Curricular Activities</i>                         | 3 sem. hrs. |
| <i>Ed. 453—Advanced Psychology of Adolescence</i>   | 3 sem. hrs. |
| <i>Ed. 454—The Junior High School</i>   | 3 sem. hrs. |
| <i>Ed. 455-456—Internship in Developmental Reading Methods for the Secondary School Teacher</i> | 6 sem. hrs. |
| <i>Ed. 463—Audio-Visual Aids</i>  | 3 sem. hrs. |

The other nine hours of electives may be taken from any graduate courses with the approval of their advisor.

The following courses are limited to graduate students who have been selected as participants in the EPDA, Experienced Teacher, Fellowship Program in Reading Instruction for Elementary and Junior High School Teachers of Disadvantaged Youth.

*Ed. 464-465—Sociological-Psychological Patterns of the Disadvantaged*

I & II, an overview of the sociological and psychological components of the disadvantaged. Emphasis is placed on those factors which effect the child's performance in the classroom. Included are: organization, economic factors and family patterns, learning theory, personality development, techniques of evaluation, analysis of the individual, and psychology of communications as related to the disadvantaged. Two semesters, six hours of credit for each semester.

*Ed. 466-467—Communication Skills I & II*

A unified cross-disciplinary course designed to increase the participants' knowledge of skills in communication. The course will consist of an introduction to language arts, cultural dialects, and linguistics. An intensive course in Reading skills, consisting of diagnostic testing, remedial techniques, and developmental instruction exploring those techniques most applicable to teaching the disadvantaged. Lectures,

demonstrations, and practical laboratory work are provided in the area of audio-visual aids, and introductory probe into programmed instruction and the use of computers in instruction. Two semesters, six hours of credit for each semester.

*Ed. 459—Internship in Reading with Disadvantaged*

Disadvantaged children are selected from schools in the Greater New Orleans area. Each participant works with a child on a one-to-one basis so that he may develop in depth diagnostic and corrective insight into the reading problems of a disadvantaged child. Opportunities are programmed for giving the participants experience in working with small groups of disadvantaged children with similar problems. Summer—six hours credit.

### EDUCATION COURSE OFFERINGS

*Ed. 401—Philosophy of Education*

A brief study of the major philosophies, including contemporary movements, which affect educational thought. 3 sem. hrs.

*Ed. 402—Comparative Education*

A comparison of the most typical educational systems in Europe, Asia, and America pointing out the basic differences in such areas as objectives, curricula, and teaching methods; social and technical changes and their effects. 3 sem. hrs.

*Ed. 420—School Administration: Elementary*

Principles, policies, practices and problems of elementary school administration; the role and functions of the elementary principal; the improvement of pupil discipline and school-community relations. 3 sem. hrs.

*Ed. 421—School Supervision: Elementary*

Principles, policies, practices and problems of elementary school supervision; inservice education of teachers; replacement or modification of the assign-study-recite-test scheme of teaching by more modern and defensible teaching techniques. 3 sem. hrs.

*Ed. 422—School Administration: Secondary*

Principles, policies, practices and problems of secondary school administration; the role and functions of the secondary principal; the improvement of pupil motivation and teacher morale; administering the comprehensive secondary school. 3 sem. hrs.

*Ed. 423—School Supervision: Secondary*

Principles, policies, practices and problems of secondary school supervision; the aims and objectives of secondary education; coordination, reform and reorganization of the secondary school curriculum. 3 sem. hrs.

*Ed. 424—School Administration: Financing Public Education*

The development of public support of education in the United States; the role of federal, state, and local government in financing education; principles, practices and problems relative to the sources, distribution, and expenditure of public funds. 3 sem. hrs.

*Ed. 425—School Administration: Legal Foundations and Problems*

Principles of law as found in Constitutional provisions, typical statutes and decisions of cases as they affect education, public and private, are examined in this course from the viewpoint of governing bodies, administrators, educators, students and those responsible for them. 3 sem. hrs.

*Ed. 426—Organization and Administration of Public Education in the United States*

The scope and sequence of American Public Education; the role of the federal government, state government, and the local school district in American public education; problems, responsibilities and activities of public school teachers. 3 sem. hrs.

*Ed. 431—Mental Hygiene and Psychology of Personality Development*

A study of the nature, principles, problems, and techniques of mental hygiene as applied to the personal-social-emotional adjustment of the child in the educational process and of the meaning, structure, components, management, and patterns of adjustment in the psychology of personality development as related to the promotion of good mental health. 3 sem. hrs.

*Ed. 432—Supervision of Student Teachers*

Role of the supervising teacher in student teaching. For those teachers who are interested in supervising elementary or secondary student teachers. Prerequisite: teaching experience and consent of instructor. 3 sem. hrs.

*Ed. 440—Elementary School Curriculum*

Comprehensive survey and study of the elementary school program. 3 sem. hrs.

*Ed. 442—Problems in Elementary Education*

Seminar in problems peculiar to education at the elementary level. 3 sem. hrs.

*Ed. 443—Advanced Educational Psychology*

A study of the nature of learning and the learning process with emphasis on a critical examination and evaluation of various theories of learning; the factors affecting learning, such as individual differences, motivation, memory, habits, transfer of training, and so on. 3 sem. hrs.

*Ed. 450—The Secondary School Curriculum and Co-curricular Activities*

Historical development of secondary education in the United States; objectives, purposes, and functions of curriculum including co-curricular activities; principles of curriculum development and re-organization; organization and structure of the curriculum; factors influencing the curriculum. 3 sem. hrs.

*Ed. 451—Problems in Secondary Education*

A critical analysis of the problems and issues of secondary education today and an appraisal of the proposals for suggested changes and improvements in secondary education. 3 sem. hrs.

*Ed. 452—Advanced Child Psychology*

A thorough study of child behavior from birth through the elementary school age with reference to the recognition and development of the various traits of personality prior to the onset of puberty.

3 sem. hrs.

*Ed. 453—Advanced Psychology of Adolescence*

A thorough study of the adolescent personality through the analysis of physical, emotional, social, motivational, intellectual, and volitional developmental changes, behavioral characteristics, basic problems and adjustments.

3 sem. hrs.

*Ed. 454—The Junior High School*

Current administration, principles and practices essential to the effective organization and management of the junior high schools. Will consider the educational leadership required of the junior high school principalship in such areas as the program of studies, schedule making, instructional materials, student activities, staff relationships, and school-community relations.

3 sem. hrs.

*Ed. 455-456—Internship in Developmental Reading Methods for the Secondary School Teacher*

Analysis of research; the objectives of developmental reading; how these objectives are achieved; practical experiences with the materials and supplementary equipment used in the field. Experience will be provided with students in large groups, grades 7-12. Summer only. Both courses must be taken together.

6 sem. hrs.

*Ed. 457—Reading Foundations*

A foundation course designed to explore, in depth, the skills to be developed in a reading program, the grade-placement of these skills, and methods for developing efficiency in the application and usage of these skills.

3 sem. hrs.

*Ed. 458—Problems in Teaching Reading*

A course to give the classroom teacher, administrator, and reading specialist insight concerning the problems related to retardation in reading. Causes, diagnostic procedures, and remedial methodology for increasing the reading efficiency of children and adolescents will be emphasized.

3 sem. hrs.

*Ed. 460-461—Practicum/Developmental Reading Methods for the Elementary School Teacher*

For teachers of grades K-6 only. A class-practicum course stressing diagnosis and correction of reading problems at the elementary level and the operation of developmental programs and individualized instruction in reading by the classroom teacher. Courses will include standardized and teacher-made tests. Children will be provided for the practicum. These courses must be taken concurrently. Summer only.

6 sem. hrs.

*Ed. 463—Audio-Visual Aids*

The organization and administration of an audio-visual program and the effective utilization of audio-visual equipment, materials and techniques.

3 sem. hrs.



*Ed. 470—Principles of Guidance*

A survey of the history, nature, purposes, functions, principles and practices of organized guidance in our educational system.

3 sem. hrs.

*Ed. 471—Analysis of the Individual: Educational Tests and Measurements*

A survey of the educational measurement movement; the principles and techniques of constructing and improving teacher-made tests; an appraisal of intelligence, aptitude, achievement, and interest tests relative to their validity, reliability, administration and interpretation.

3 sem. hrs.

*Ed. 474—Educational and Occupational Information*

A study of various types of published information and multi-sensory materials, various occupational classification systems, methods of collecting, classifying, evaluating, and using occupational information.

3 sem. hrs.

*Ed. 475—Counseling*

Theories and techniques of counseling with consideration given to the principles, practices, tools, problems, and evaluation of counseling.

3 sem. hrs.

*Ed. 476—Group Guidance*

The nature, importance, and types of group guidance in a guidance program; an intensive study of the contents, materials and techniques utilized in group guidance.

3 sem. hrs.

*Ed. 477—Organization and Administration of Guidance*

A careful study of the various types of guidance programs current in theory and practice. This will stress the functions of guidance at the elementary, secondary, college, and adult level.

3 sem. hrs.

*Ed. 479—Practicum in Guidance*

This course is designed to apply the testing and counseling knowledge and skills acquired in other courses. In classroom discussion trends, issues, professional stature and ethical conduct as well as related services will be emphasized. This should be the last course taken in the student's guidance sequence.

3 sem. hrs.

*Ed. 490—Methodology of Educational Research*

An extensive study of the methods and tools of educational research with emphasis upon student application of the scientific method through the selection, development, and reporting of a research topic.

3 sem. hrs.

*Ed. 491—Statistics in Education*

The computation, use and understanding of frequency distributions, measures of central tendency, measures of variability, normal curve, correlation, and statistical inference as applied to education and found in educational literature. Prerequisite: Ed. 490

3 sem. hrs.

*Ed. 499—Research Problem in Education*

An individual research project, under close supervision of a faculty member, when particular needs of a student cannot be satisfied by the regularly scheduled courses. Prerequisite: Ed. 490.

1-3 sem. hrs.



# The Graduate Division of the College of Music

Joe B. Buttram, Ph.D., *Chairman*

## PURPOSE

The Graduate Division of the College of Music offers two degrees, the Master of Music Education and the Master of Music in Music Therapy. The Master of Music Education degree is designed for members of the teaching profession. The intent of the degree is the development of professional leadership capabilities with emphasis on scholarly research. The Music Therapy Department offers a program of graduate study designed to provide serious students with the opportunities to achieve advanced professional, behavioral and musical knowledge. In addition, techniques of scholarly writing and research are emphasized.

## ADMISSION

In order to pursue the Master of Music Education degree, the applicant must hold a Bachelor of Music Education degree or its equivalent, from a recognized institution. Those applicants holding a Bachelor's degree but not meeting the educational requirements for State certification in music may also pursue the degree, but must fulfill all deficiencies for certification before being formally admitted to candidacy. Applicants for the Master of Music Therapy degree are required to have a Bachelor of Music Therapy degree from an institution approved by the National Association for Music Therapy. In lieu of this, students having music degrees with majors other than music therapy may be accepted on a provisional basis providing all undergraduate requirements for the music therapy degree are fulfilled.

Certain candidates not meeting the above requirements may be allowed to take specific courses for graduate credit. These candidates may be admitted as "out-of-course" students at the discretion of the Chairman of the Graduate Department, College of Music. Among these may be candi-

dates already possessing a Master's degree who wish to secure additional graduate hours.

Undergraduate students of Loyola University who lack no more than 6 semester hours of credit for a Bachelor's degree and who have attained a "B" average or better in upper division work may be allowed to register for a maximum of six semester hours of graduate work. These students must follow regular admission procedure and the total program of graduate and undergraduate work at that time may not exceed twelve semester hours.

To be considered for admission to the Graduate Division, the following *must* be accomplished:

1. The applicant must make formal application to the Graduate School one month before the beginning of the session when the student plans to begin graduate work. Application forms may be obtained from the Graduate School, Loyola University, New Orleans, Louisiana 70118. They are to be completed *in duplicate* and returned with the application fee attached.
2. The applicant must write to the Registrar of each college previously attended and request an official transcript *in duplicate* of all undergraduate and graduate work. These transcripts must be sent by the college directly to the Graduate School office.
3. The applicant is required to complete the Miller Analogies Test, which is administered several times per year at Loyola University. Results of this test are to be sent to the Chairman of the Graduate Division, College of Music.
4. The applicant for the Master of Music Therapy degree must take a battery of standard psychological tests. It is recommended that a professional testing agency be employed for this purpose. Results of these

tests are to be sent directly to the *Chairman of the Music Therapy Department*.

5. A personal interview with the Chairman of the Graduate Division, College of Music or the Chairman of the Music Therapy Department is usually required.

On the basis of the above information, the applicant may be admitted to the Graduate Division. All students are accepted initially on a provisional basis. After successful completion of twelve hours of graduate work (i.e., with a "B" average) and fulfillment of all prerequisites, the applicant may be formally admitted to candidacy. This decision will require the consent of the Graduate Committee of the College of Music.

#### RESIDENCE

Both graduate degrees offered by the College of Music require a minimum of 30 semester hours of graduate work including thesis. This work must include *one semester*, or its equivalent in summer terms, as a full-time student. Ordinarily, two summer terms will be interpreted as meeting this minimum requirement. A student may enroll for a maximum of twelve semester hours during the regular term and a maximum of nine semester hours during the summer session. A full-time teacher who wishes to take courses during the regular term may enroll for a maximum of six hours per semester. Students may transfer *a maximum of six hours* of graduate credit from another college which may apply towards the Master's degree. Acceptance of such credit will be at the discretion of the Graduate Committee of the College of Music.

#### LIMIT OF TIME

Work completed more than six years before the date on which the Master's degree is to be conferred will not be accepted in fulfillment of requirements for the degree.

## DEGREE PROGRAMS

## Master of Music Education

The Master of Music Education consists of a minimum of 30 semester hours chosen from the following:

## I. Music Education 14-17 hours

## Required Courses:

*Mu 590—Seminar in Research* 1 sem. hr.

*Mu 591—Thesis* 3-4 sem. hrs.

*Mu 551—Organization of School Music* 3 sem. hrs.

Courses may be elected from the following to complete the required 14-17 hours:

\**Mu 454—Psychology of Music I* 3 sem. hrs.

*Mu 463—Influence of Music on Behavior I* 3 sem. hrs.

*Mu 515—Choral Pedagogy* 3 sem. hrs.

*Mu 521—Special Problems in Music Education* 2-3 sem. hrs.

*Mu 523—Woodwind Pedagogy* 3 sem. hrs.

*Mu 525—Brass Pedagogy* 3 sem. hrs.

*Mu 529—String Pedagogy* 3 sem. hrs.

*Mu 553—Music in Society* 3 sem. hrs.

## II. General Music 7-10 hrs. to be selected from the following:

*Mu 511—Pedagogy of Theory* 3 sem. hrs.

*Mu 527—Applied Music* 1 hr. and/or  
a qualifying examination  
is required.

*Mu 531—Choral Literature* 3 sem. hrs.

*Mu 537—Orchestral Literature* 3 sem. hrs.

*Mu 561—Advanced Choral Conducting* 3 sem. hrs.

*Mu 565—Advanced Instrumental Conducting* 3 sem. hrs.

## III. Education

6 hours to be selected from  
the following:

|  |             |
|--|-------------|
| <i>**Ed 401—Philosophy of Education</i>          | 3 sem. hrs. |
| <i>Ed 443—Advanced Educational Psychology</i>    | 3 sem. hrs. |
| <i>Ed 452—Advanced Child Psychology</i>          | 3 sem. hrs. |
| <i>Ed 453—Advanced Psychology of Adolescence</i> | 3 sem. hrs. |
| <i>Ed 463—Audio-Visual Aids</i>                  | 3 sem. hrs. |
| <i>Ed 491—Statistics in Education</i>            | 3 sem. hrs. |

\* Students may take a minimum of six hours of 400 level (undergraduate) courses which may apply to the graduate degree.

\*\* Graduate courses in the School of Education are numbered from 400 to 499.

## Master of Music in Music Therapy

The Master of Music in Music Therapy consists of a minimum of 30 semester hours chosen from the following:

## I. Required Courses:

|   |               |
|---|---------------|
| <i>*Psy 403—Experimental Design</i>     | 3 sem. hrs.   |
| <i>Mu 554—Psychology of Music II</i>    | 2 sem. hrs.   |
| <i>Mu 563—Influence of Music II</i>     | 3 sem. hrs.   |
| <i>Mu 573—Research in Music Therapy</i> | 3 sem. hrs.   |
| <i>Mu 591—Thesis</i>                    | 4-6 sem. hrs. |

## II. Electives I

|                                     |               |
|-------------------------------------|---------------|
| <i>Mu 511—Pedagogy of Theory</i>    | 3 sem. hrs.   |
| <i>Mu 515—Choral Pedagogy</i>       | 3 sem. hrs.   |
| <i>Mu 527—Applied Music</i>         | 1-2 sem. hrs. |
| <i>Mu 537—Orchestral Literature</i> | 3 sem. hrs.   |
| <i>Mu 585—Advanced Scoring</i>      | 3 sem. hrs.   |

## III. Electives II

|   |             |
|---|-------------|
| <i>**Psy 310—Personality Theory</i>                                   | 3 sem. hrs. |
| <i>Psy 402—Psychopathology</i>  | 3 sem. hrs. |
| <i>Ed 431—Mental Hygiene and Psychology of Personality Adjustment</i> | 3 sem. hrs. |
| <i>Ed 452—Advanced Child Psychology</i>                               | 3 sem. hrs. |



|  |             |
|--|-------------|
| <i>Ed 453—Advanced Adolescent Psychology</i> | 3 sem. hrs. |
| <i>Ed 470—Principles of Guidance</i>         | 3 sem. hrs. |

In addition to the required or core courses, a minimum of five hours must be selected from subjects similar to those listed in *Electives I*, and a minimum of nine hours selected from subjects similar to those listed in *Electives II*.

\* Graduate courses in the College of Education and in the Psychology Department are numbered from 400 to 499.

\*\* A minimum of six hours of 300 level (undergraduate) courses may be elected to apply to the graduate degree.

## DESCRIPTION OF COURSES

### *Mu 454—Psychology of Music I*

Acoustics of music; Sound waves and their characteristics; vibratory sources of sounds; anatomy of hearing; neural auditory connections to the cortex; the psychology of tone; nature of the aesthetic experience; tests of musicality and talent.

### *Mu 463—Influence of Music on Behavior I*

Historical orientation, the medical use of music; the pre-Socratics; Plato and Aristotle; Aristoxenus; the transmission of Greek knowledge to the Middle Ages; the beginnings of activity or adjunctive therapy, Pinel, Tuke, Simmel, Aichorn.

3 sem. hrs.

### *Mu 511—Pedagogy of Theory*

Presentation of the various approaches to the teaching of theory with special emphasis on primary and secondary levels. Auditing of undergraduate theory classes is required.

3 sem. hrs.

### *Mu 515—Choral Pedagogy*

Choral organization problems, blend, balance, intonation and vocal production; interpretation of literature; program building; rehearsal psychology.

3 sem. hrs.

### *Mu 521—Special Problems in Music Education*

Individual study in an area of interest and significance under the supervision of a faculty member.

2-3 sem. hrs.

### *Mu 523—Woodwind Pedagogy*

Problems related to the teaching of woodwind instruments; mechanical and acoustical problems; instructional materials solo and ensemble literature.

3 sem. hrs.

### *Mu 525—Brass Pedagogy*

Problems and procedures in the teaching of brass instruments; historical development; acoustical considerations; methods and instructional materials; literature.

3 sem. hrs.

*Mu 527—Applied Music*

Private study. The student must display a minimum level of performing ability on his designated major instrument (including voice).

1 sem. hr. and/or  
a qualifying  
examination

*Mu 529—String Pedagogy*

Problems in the teaching of string instruments; methods and materials; literature.

3 sem. hrs.

*Mu 531—Choral Literature*

Extensive study of choral literature and style throughout all periods of music history. Special emphasis on materials suitable for junior-senior high school choral groups.

3 sem. hrs.

*Mu 537—Orchestral Literature*

Survey of orchestral literature from the Baroque to the present including stylistic analysis of selected works.

3 sem. hrs.

*Mu 551—Organization of School Music*

A study of Music Education, its historical development, its position in the context of educational philosophy and psychology, recent trends and the place of music in the school curriculum; criteria for the evaluation of activities, courses, materials, and methods in a well-balanced program of music.

3 sem. hrs.

*Mu 553—Music in Society*

A study of musical aesthetics as related to the social and political development of Western Man: Origins of aesthetic thought, Plato, Aristoxenus; Roman, Patristic and Reformation theories; Aesthetics and empiricism; Modern sociological and psychological contributions.

Lecture; 3 sem. hrs.

*Mu 554—Psychology of Music II*

Techniques and instrumentation for research in the psychology of music. Lecture and laboratory.

2 sem. hrs.

*Mu 561—Advanced Choral Conducting*

A detailed study of advanced conducting problems; special emphasis on score reading and analysis; contemporary literature, style and interpretation.

3 sem. hrs.

*Mu 563—Influence of Music on Behavior II*

Man and Music; Processes in Music Therapy; The Community Concept in Music Therapy.

3 sem. hrs.

*Mu 565—Advanced Instrumental Conducting*

Conducting techniques; score reading and analysis; literature, style and interpretation.

3 sem. hrs.

*Mu 572—Research in Music Education*

Original investigations in the field of music education.

2-5 sem. hrs.

*Mu 573—Research in Music Therapy*

Original investigations in the field of music therapy. Seminar.

3 sem. hrs.

*Mu 585—Advanced Scoring*

The study of scoring for various media such as concert band, chorus, string orchestra, and full orchestra; course structured to individual student's need and interest.

3 sem. hrs.

*Mu 590—Seminar in Research*

Required of all Master's candidates, enrollment must be concurrent with the student's first semester in the graduate program; techniques in research and writing crucial to the completion of the thesis.

1 sem. hr.

*Mu 591—Thesis*

3 to 6 sem. hrs.

# Graduate Programs in Science Teaching in the Chemistry, Mathematics and Physics Department

The departments of Chemistry, Mathematics, and Physics offer a graduate program uniquely designed for teachers and leading to a Master of Science in Teaching. It is designed to improve subject matter mastery in their teaching field and in related sciences, as well as to keep the teachers abreast of modern developments.

## ADMISSION

Any teacher who has a Bachelor's degree from a recognized institution and has undergraduate training in his chosen field may be admitted to the degree program. The adequacy of undergraduate training will be determined by the Graduate Committee of the respective Department and based on official transcripts of previous work; on results of a placement examination; and on personal interviews with the applicant.

Admission to the program in every case will be on a provisional basis until at least twelve hours are completed with a quality point ratio of 3.00, that is, a grade of B (satisfactory work acceptable for graduate credit). At the completion of these twelve hours, the student may be admitted by the Graduate Committee to the category of classified graduate student.

Application for admission must be made to the Graduate Committee of the Department concerned, Loyola University, New Orleans, Louisiana 70118.

## DEGREE REQUIREMENTS

A minimum of 30 and a maximum of 36 graduate semester hours with a quality point ratio of 3.00 (B average) are required. Of these hours, at least 18 must be in the major field and taken at Loyola University. A maximum of 6 hours may be transferred from other recognized institu-

tions with explicit approval of the Graduate Committee. Up to 6 hours may be taken in the field of Education, the remaining hours may be taken in a related science field.

A working knowledge of mathematics up to and including the Calculus is required; and a reading knowledge of at least one modern foreign language is desirable.

If the degree is to be granted for course work alone, satisfactory performance in a comprehensive examination on all courses is required. In lieu of this comprehensive examination, and with prior approval of the Graduate Committee of the respective department, the Candidate may elect to write a thesis under faculty supervision. In this latter case, an oral "defense" of the thesis, or of the research on which it is based, may take the place of the comprehensive examination.

Each candidate must have satisfactorily completed either the thesis or the comprehensive examination at least three months before the date of graduation.

#### LIMIT OF TIME

Work completed more than six years before the date on which the Master's degree is to be conferred will not be accepted in fulfillment of requirements for the degree.



# Chemistry Course Offerings

Dr. Anthony DiMaggio III, Ph.D., *Chairman*

## *Ch. 401-402T—General Chemistry*

This course is taught every year and is the course usually taken by new participants who are not familiar with the CHEM Study or CBA curriculum. Lecture and Laboratory. 8 sem. hrs.

## *Ch. 403-404T (Ed. 403-404)—Principles of Physical Science*

This course, offered to lower elementary school teachers, is designed to furnish sufficient background subject matter in basic chemistry and physics to enable them to incorporate meaningful and accurate concepts in physical science into their curricula. Credit is applicable toward the M.Ed or the M.S. in Science Teaching Degree. Lecture and Laboratory. 6 sem. hrs.

Participants whose backgrounds warrant it may take more advanced courses from the group Ch. 411 through Ch. 499. Two to four of these courses may be taken for a total of eight semester hours a year. All advanced courses will be given in any three-year sequence. During laboratory, opportunities will be available for preparation of molecular models and other demonstration material for use in the participants' own high school classes.

## *Ch. 405-406T—Principles of Chemistry for Elementary School Teachers*

Similar to Ch. 403-404T, except more extensive. Lecture.

6 sem. hrs.

## *Ch. 407T—Philosophy of Science*

A seminar type course designed to familiarize elementary school teachers with the philosophy, terminology, and methodology of science. Lecture. 2 sem. hrs.

## *Ch. 408T—Laboratory Experiments in Chemistry*

Accompanies Ch. 405-406. Laboratory.

2 sem. hrs.

## *Ch. 409T—Preparation of Materials Laboratory*

A practical course in the preparation of devices and other teaching aids suitable for use in the elementary school classroom. Lecture demonstration and Laboratory. 4 sem. hrs.

## *Ch. 410T—Elementary Science Practicum*

Supervised experience with elementary school children in the learning of physical science principles using Montessori-type Devices.

4 sem. hrs.

## *Ch. 411T—Quantitative Analysis*

Basic principles and techniques of quantitative analysis including stoichiometry, evaluation of measurements, acid-base equilibria, redox, precipitation, titration, and gravimetric methods. Lecture and Laboratory. 4 sem. hrs.

## *Ch. 412T—Analytical Chemistry I*

Basic principles of analytical chemistry. Separation of ions, volumetric and gravimetric analysis, acidimetry and alkalimetry, redox

methods, the use of adsorption indicators, iodimetry, statistical methods applied to analytical chemistry, use of organic precipitants, EDTA, colorimetry, electrometric methods, chromatography. Lecture and Laboratory. 4 sem. hrs.

*Ch. 413T—Analytical Chemistry II*

An analytical instrumentation course, including spectrophotometry, (IR, visible, UV, flame), chromatography (gas, thin-layer, column), electrometric methods and polarography. Lecture and Laboratory. 4 sem. hrs.

*Ch. 421T—Organic Chemistry*

Covers structural and bonding theory, organic reaction mechanisms, stereochemistry, and type reactions of organic compounds. Modern methods of determining molecular structure. Lecture and Laboratory. 4 sem. hrs.

*Ch. 422T—Organic Reactions and Mechanisms*

A detailed study of the major type and name reactions. Mechanisms will be discussed using kinetics, thermodynamics, and other physico-chemical principles. Lecture. 3 sem. hrs.

*Ch. 423T—Techniques of Organic Chemistry*

Selected experiments using apparatus and instruments not normally available in an introductory organic laboratory course. Opportunity will be given to develop demonstrations and experiments suitable for use in high school chemistry courses. Laboratory. 1 sem. hr.

*Ch. 424—Instrumental Organic Analysis*

A detailed study into the fundamental physical principles of construction and operation of scientific electronic equipment used routinely in the analysis of organic compounds. Lecture, Demonstration and Laboratory. 4 sem. hrs.

*Ch. 431T—Inorganic Chemistry*

Nuclear structure and reactions, atomic structure, chemical bonding, and periodicity. Inorganic stereochemistry and reaction mechanisms, acid-base theories, and nonaqueous solvents. Lecture. 3 sem. hrs.

*Ch. 432T—Inorganic Chemistry Techniques*

A presentation of special laboratory techniques illustrated by carefully chosen syntheses of several types of compounds. Laboratory. 1 sem. hr.

*Ch. 441T—Physical Chemistry*

The states of matter and kinetic theory, thermodynamics, the laws of solutions, chemical and physical equilibria, chemical kinetics. electrochemistry, colloids, and molecular structure. Lecture and Laboratory. 4 sem. hrs.

*Ch. 442T—Colloid Chemistry*

Basic principles of colloid chemistry including interfacial phenomena, viscosity, nucleation, lyophilic and lyophobic systems, optical and electrical properties of colloids. Lecture. 3 sem. hrs.

*Ch. 443T—Colloid Chemistry*

Preparation and coagulation of colloids. Determination of particle size, shape, form, and structure. Laboratory. 1 sem. hr.

*Ch. 444T—Thermodynamics*

Selected topics from the field of classical thermodynamics including the mathematical derivation of formulae expressing the three Laws of Thermodynamics. Lecture. 3 sem. hrs.

*Ch. 446T—Physical Organic Chemistry*

Covers advanced aspects of structure and bonding of organic molecules, resonance, inductive and conformational effects on reactivity and basic elements of spectroscopy. Lecture, demonstration and laboratory. 4 sem. hrs.

*Ch. 451T—Biochemistry*

Review of the organic chemistry of carbohydrates, lipids, proteins, and nucleic acids. Enzymology, digestion, metabolism, respiration, and endocrinology. Aspects of clinical chemistry. Laboratory work will include typical reactions and determinations on major biological compounds, selected kinetic experiments on the dynamic aspects of biochemistry, and demonstrations of more refined biochemical techniques. Lecture and Laboratory. 4 sem. hrs.

*Ch. 452T—Biochemical Mechanisms*

A detailed study of individual reactions involved in the synthesis, degradation, and interconversions of major biological compounds with some emphasis on the physico-chemical aspects. Lecture. 3 sem. hrs.

*Ch. 453T—Biochemical Techniques*

Selected experiments using apparatus and instruments not normally available in an introductory biochemical laboratory course. Laboratory. 1 sem. hr.

*Ch. 455, 456, 465, 466—Advanced Placement Chemistry I, II, III, and IV*

Fundamental principles in chemistry are treated in sufficient depth to enable high school teachers to teach a course in chemistry comparable to a freshman college level course. This is a partially sequential Summer Institute program which may be attended for two summers. Lecture and Laboratory. 4 semester hours each for a maximum of 16 semester hours.

*Ch. 499T—Research in Chemistry Teaching*

Individual or group research aimed at developing and perfecting chemistry experiments, demonstrations, lecture and laboratory syllabi for adaption into high school chemistry courses. 0-3 sem. hrs.

# Mathematics Course Offerings

Robert T. McLean, Ph.D., *Chairman*

The following courses are especially designed for Teachers of Mathematics according to the Recommendations of the Mathematical Association of America for the Training of Mathematics Teachers. See detailed report of the Committee on the Undergraduate Program in Mathematics and Its Panel on Teacher Training in American Mathematical Monthly, volume 67, 1960, pp. 982-991. Also see similar report in The Mathematics Teacher, volume LIII, number 8, 1960.

## MATHEMATICS COURSE OFFERINGS

### *Mt. 401—Foundations of Mathematics*

The axiomatic method; theory of sets; infinite sets; countability and cardinality; well-ordered sets; ordinal numbers; mathematical logic; intuitionism; formalism; Hilbert's "proof theory"; Godel's proof.

3 sem. hrs.

### *Mt. 403-404—Algebraic Structures of the Number System.*

Topics selected to introduce the secondary school teacher to abstract thinking and to generate in him an appreciation for mathematical structure. This course assumes no prior training in "modern" mathematics. Any high school mathematics or science teacher is eligible for enrollment. While not designed for this purpose, this course will also supply much of the background needed for future enrollment in the linear algebra and analysis.

6 sem. hrs.

### *Mt. 405-406—Geometries—Synthetic and Coordinate.*

Topics include sets, betweenness, planes, separation, induction and deduction, proof, perpendicular lines, parallel lines, Euclid's fifth postulate, elementary notions about non-Euclidean geometries, parallel planes, congruence, similarity, geometric inequalities, constructions, loci, plane coordinate geometry, proof-using methods of coordinate geometry, areas of polygons, and circles, areas and volumes of solids and miniature geometries.

6 sem. hrs.

### *Mt. 407-408—Functions, Concepts and Representations.*

Selected functions and relations chosen with the secondary school teacher's needs in mind. Topics will include an introductory study of functions and relations treated abstractly, trigonometric functions, solutions of simultaneous equations by various methods (including computer and matrix methods), probability and frequency functions, introductory analysis.

6 sem. hrs.

### *Mt. 413-414—Abstract Algebra*

Algebraic structures, such as groups, rings, fields, etc. Rigorous proofs emphasizing the axiomatic treatment.

6 sem. hrs.

### *Mt. 421-422—Introduction to Linear Algebra and Matrices*

Systems of linear equations; vector spaces; basic operations for matrices; determinants; bilinear and quadratic functions and forms; linear transformations on a vector space and canonical representations of a linear transformation.

6 sem. hrs.



*Mt. 423-424—Advanced Linear Algebra*

Real, finite-dimensional cases. Concrete manipulation of vectors and matrices. Vector equations and inequalities, intuitive introduction to linear programming and games. Linear functions and transformation, including a thorough understanding of the solution of  $m$  equations in  $n$  unknowns. 6 sem. hrs.

*Mt. 427-428—Basic Analysis—A Depth Treatment.*

A detailed study of the basic concepts of analysis. It will include topological properties of the real numbers; the limit concept; infinite sequences and series; functions defined by sequences and series; continuous functions; uniform continuity; applications to the Calculus. 6 sem. hrs.

*Mt. 431-432—Foundations of Geometry and Trigonometry*

A course designed for a formal development of affine and Euclidian geometry, attempting to present coherent development of those portions of geometry actually a part of present day mathematics, meeting the standards of rigor of, employing the concepts and procedures of, and attaching naturally to, present day mathematics. The algebra of real numbers is the basis of this geometry. 6 sem. hrs.

*Mt. 433-434—Geometry*

Foundations of geometry (in the sense of Hilbert). Generalization of the idea of congruence to include rigid motions, that is, one-to-one correspondence preserving distances. A corresponding generalization of the ideas of similarity. Measure theory; familiar area and volume formulas as theorems; Cavalieri's Principle. 6 sem. hrs.

*Mt. 435—Pure Analytic Geometry*

Points, lines, and so on are defined and treated in terms of an algebraic model. This development is based on the fifteen axioms for plane geometry as published in Hilbert's *Grundlagen*. The undefined terms in the axioms—six in number—are shown to be in algebraic correspondence by means of coordinates. 3 sem. hrs.

*Mt. 440—History of Mathematics*

This course provides a vibrant study of mathematical development from prehistoric time to the "modern" mathematics puzzling the parents of today's elementary school students. 3 sem. hrs.

*Mt. 447-448—Probability and Statistics*

Probability theory from a set-theoretic point of view, and application of basic probability theory to problems of statistical inference. 6 sem. hrs.

*Mt. 453-454—Calculus and Analytic Geometry*

A more rigorous treatment of the material in Mt. 353-354 with greater manipulative skills expected. Infinite sequences and series. Elementary differential equations. 6 sem. hrs.

*Mt. 461-462—Theory of Real Functions*

This introductory graduate level course investigates in depth concepts of uniform continuity and convergence, covering sets, almost continuous functions, Lebesgue integrals and other related topics. 6 sem. hrs.



*Mt. 463-464—Theory of Complex Functions*

Analytic functions, Cauchy integral theory, meromorphic functions, analytic continuation are included in the scope of this course.

6 sem. hrs.

*Mt. 493—Programming Mathematical Problems for Digital Computers*

Input, output, and storage devices; binary, octal, hexadecimal and other number systems; coding and programming in machine language; flow charts; sequencing; loops and branches; automatic address modification; precision and scaling; subroutines; testing programs; optimum programming; automatic programming; compilers.

3 sem. hrs.

*Mt. 494—Numerical Analysis*

Ordinary finite differences; divided differences; interpolation; sub-tabulation; series and integrals; numerical solution of differential equations; linear systems and matrices; solution of linear equations; difference equations; solution of partial differential equations by difference methods; control of errors. Prerequisites: Mt. 493. 3 sem. hrs.

*Mt. 499—Research*

3 sem. hrs.

# Physics Course Offerings

David G. Keiffer, Ph.D., *Chairman*

Special advanced offerings designed specifically for High School Teachers of Physics will be presented as demand and resources permit. These offerings will generally carry graduate credit and will be applicable toward the M.S. (Physics Teaching) degree. Applicants for such degree program must fulfill the general requirements stated on explanation page entitled "Graduate Programs in Science Teaching in the Chemistry, Mathematics and Physics Department."

Fall and Spring Semesters: Physics 470-471; Physics 472-473

## *Ph. 470-471—Introductory Physical Science*

A unified laboratory-lecture course designed for teachers of students at the junior high level. This laboratory-oriented course, which had its genesis in the Physical Science Study Committee physics program, is expected to equip students to meet the challenge of the various new senior high school courses in science. The study of matter is the central theme; differences between substances and the idea of quantity are the avenues of approach. Participants have a very active role in the program, observations and experiments being integrated directly and immediately with the lectures and problems.

4 sem. hrs.

## *Ph. 472-473—Harvard Project Physics*

A fresh approach to the teaching of physics primarily from the humanistic point of view. Materials comprising Project Physics include six basic Units, forming the *main line* course, plus a choice of selections from a number of supplemental Units. The course essentially is designed to be good physics in the widest, most humanistic way possible, and presented at a culturally scientific level to challenge the interests and ability of the majority of all senior high school students.

In addition to texts for the above Units other materials in Project Physics include a number of visual aids, special readers, and ingenious laboratory devices. Flexibility of presentation is built into the Project Physics so that high school students and teachers alike have considerable freedom in structuring their individual programs.

6 sem. hrs.

## *Ph. 481-491—Foundations of Modern Physics*

Historical and philosophical origins of present-day physical theories. Fields and forces. Modern energy-space-time concepts. Selected experiments from Modern and Atomic physics.

6 sem. hrs.

## *Ph. 482-492—General Physics*

A review of the traditional divisions of basic physics with special emphasis on "workshop" participation, general discussion of problems arising in high school classrooms and the analysis and solutions of physical problems. Special experiments and demonstrations by participants according to field of interest.

6 sem. hrs.

*Ph. 483-493—Classical Mechanics and Mathematical Methods*

A theoretical course based fundamentally on the conservation theorems. Foundations of classical mechanics including statics, kinematics, and dynamics of a rigid body, oscillatory and planetary motion, are treated. Also included are selected topics from thermodynamics and statistics. 6 sem. hrs.

*Ph. 484-494—Elements of Electricity and Electronics*

Theory, circuitry, and measurements in electricity and electronics. AC and DC nets are considered; solid-state as well as thermionic devices will be treated. Measurements will include resistivity, currents, potentials, capacitance, and inductance. Instrumentation will be adaptable to the high school inventory as far as practicable. Experiments will include oscillators, amplifiers, photo and control devices. 6 sem. hrs.

*Ph. 495—Basic Optics and Wave Motion*

Geometrical and physical optics using simplified equipment readily available. Fundamental principles, rather than completed optical instruments, will be emphasized. Primarily a laboratory course modeled after the Palmer manual. 3 sem. hrs.

*Ph. 496—Atomic Physics*

Origin and development of some of the more important concepts of the physics of the 20th Century, with main emphasis being placed on introductory quantum principles, the extra-nuclear structure of the atom, and an introduction to radioactivity and nuclear processes. 3 sem. hrs.

*Ph. 497—Introductory Electromagnetics*

A presentation from field-theoretical viewpoint. Topics to be presented will include fields, potential, dielectrics, electromagnetics, currents, Maxwell's equations, and waves. The use of calculus and elementary vectors will be presumed. 3 sem. hrs.

*Ph. 499—Research*

2-4 sem. hrs.



## JESUIT EDUCATIONAL ASSOCIATIONS

Paul C. Reinert, S.J., *President*

A. William Crandell, S.J., *Vice President*

Paul V. Siegfried, S.J., *Executive Secretary*

1717 Massachusetts Avenue, N.W., Washington, D.C. 20036

Rev. James C. Carter, S.J.

*Director of Education, New Orleans, Province*

6363 St. Charles Avenue, New Orleans, Louisiana 70118

## AMERICAN JESUIT COLLEGES AND UNIVERSITIES

### ALABAMA

Spring Hill College, Mobile

### CALIFORNIA

Loyola University, Los Angeles

Santa Clara University, Santa Clara

University of San Francisco, San Francisco

### COLORADO

Regis College, Denver

### CONNECTICUT

Fairfield University, Fairfield

### DISTRICT OF COLUMBIA

Georgetown University, Washington

### ILLINOIS

Loyola University, Chicago

### LOUISIANA

Loyola University, New Orleans

### MARYLAND

Loyola College, Baltimore

### MASSACHUSETTS

Boston College, Boston

Holy Cross College, Worcester

### MICHIGAN

University of Detroit, Detroit

### MISSOURI

Rockhurst College, Kansas City

St. Louis University, St. Louis

### NEBRASKA

The Creighton University, Omaha

### NEW JERSEY

Saint Peter's College, Jersey City

### NEW YORK

Canisius College, Buffalo

Fordham University, New York

Lemoyne College, Syracuse

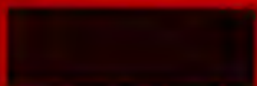
### OHIO



FRERET ST.



LA SALLE PL.



33



32

CROMWELL PL.



25



12

34

13

35

36



24

27



20



75



19



18

17



10

LOYOLA AVE.



16



15



11



2

14

08

